

# **CONDITIONS OF COMPETITION AFFECTING THE NORTHEASTERN U.S. GROUNDFISH AND SCALLOP INDUSTRIES IN SELECTED MARKETS**

**Report to the President on  
Investigation No. 332-173,  
Under Section 332  
of the Tariff Act of  
1930, as Amended**

**USITC PUBLICATION 1622**

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# UNITED STATES INTERNATIONAL TRADE COMMISSION

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## PREFACE

The Commission instituted the present investigation on December 9, 1983, following the receipt of a letter of request therefor on November 14, 1983, from Ambassador William E. Brock, the United States Trade Representative (USTR). The investigation was conducted under section 332(g) of the Tariff Act of 1930 (19 U.S.C. 1332(g)) for the purpose of gathering and presenting information on the competitive and economic factors affecting the performance of the Northeastern U.S. groundfish and scallop industries in selected Northeastern U.S. markets and to analyze these industries' competitive position in these markets. 1/ Specifically, the Commission was asked to develop the following information, with an emphasis on, but not limited to, the Canadian and U.S. industries: Government assistance to the fishing industries; fisheries resources and their management; production levels in the harvesting and processing segments; volume of trade; industry integration; employment; product prices; financial structure of the harvesting and processing industries; the effect of exchange rates and tariff and nontariff barriers on the flow of trade between the two countries; the importation of other product types such as frozen fish blocks; and trade barriers of other potential Canadian export markets.

Public notice of the investigation and hearings was given by posting copies of the notice at the Office of the Secretary, U.S. International Trade Commission, Washington, DC, and by publishing the notice in the Federal Register of December 21, 1983 (48 F.R. 56451). 2/ Public hearings in connection with this investigation were held on September 5, 1984, in Boston, MA, and on September 7, 1984, in Portland, ME. 3/ Public notice of the locations of the hearings for the investigation was published in the Federal Register of July 25, 1984 (49 F.R. 30024). 4/

The information presented in this report was obtained from fieldwork, questionnaires, public hearings, private individuals and organizations, and State, Provincial, and Federal Government sources in the United States and Canada.

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1/ The request from the United States Trade Representative is reproduced in app. A.

2/ A copy of the notice of the Commission's investigation and hearing is reproduced in app. B.

3/ A list of witnesses appearing at the hearings is presented in app. C.

4/ A copy of the supplementary notice of the Commission's hearings is reproduced in app. D.



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## EXECUTIVE SUMMARY

The health of the Northeastern U.S. groundfish and scallop industry is closely tied to the general economic conditions of the domestic economy, the variability in groundfish and scallop resources available to the domestic fishermen, and the competitive posture of the Canadian groundfish and scallop industry. These factors, coupled with the open-access nature of commercial fisheries in the Northeastern United States, create an extremely competitive situation for domestic fishermen and processors. During 1979-83, Northeastern U.S. landings of groundfish increased substantially in quantity and value; landings of scallops declined in quantity but increased in value during the period. During the same period, foreign producers, particularly those in Canada, significantly increased their sales of certain competitive species and product forms in the Northeastern U.S. market.

Members of the Northeastern U.S. groundfish and scallop industry have expressed their concerns about their competitive position in the Northeastern U.S. market, particularly with respect to competition from imports from Canada.

The principal allegations made by the U.S. industry are as follows:

1. Groundfish and scallop harvesters in the Northeastern United States are being injured as a result of imports from Canada;
2. Canadian groundfish and scallop exports, particularly those from Nova Scotia and Newfoundland, are aided by grants, loans, Government equity positions in the large companies, and other benefits in the form of subsidies and other assistance provided by the Canadian Federal Government and the Provincial governments of Nova Scotia and Newfoundland; and
3. The value of the Canadian dollar has been declining relative to the U.S. dollar, allowing Canadian groundfish and scallops to sell for less in U.S. dollars and thus putting downward pressure on the price of domestic groundfish and scallop products in the Northeastern U.S. market.

The principal arguments offered by Atlantic Canada Government and industry representatives focus on the following:

1. Imports from Atlantic Canada account for a relatively low proportion of Northeastern U.S. domestic fresh groundfish and scallop supplies;
2. Atlantic Canada supplies of fresh groundfish and scallops in the Northeastern U.S. market are seasonally concentrated in periods when domestically-produced supplies are low; therefore, such supplies from Atlantic Canada provide stability to the Northeastern U.S. industry;
3. Government assistance programs in the United States are comparable in scope of operation, if not in absolute size of funding, to those in Canada; and
4. A more effective fisheries management plan in Canada has resulted in more predictable and larger stocks of groundfish and scallops available to Atlantic Canada fishermen.

Highlights of the Commission's investigation are as follows:

1. Structure of the Northeastern U.S and Atlantic Canada industries.

- o The Northeastern U.S. groundfish and scallop industries comprise a large number of small- and medium-sized firms with low levels of concentration and integration.

The harvesting sector of the Northeastern U.S. groundfish and scallop industries generally consists of independent, privately owned, single-unit enterprises. The crew size on a fishing vessel seldom exceeds 12, and the number of vessels owned by an individual seldom exceeds 4, with 1 being the most common. Also, ownership of fishing vessels by processing firms is limited. In 1983, about 1,200 full-time vessels, employing approximately 8,000 persons, made up the Northeastern U.S. groundfish- and scallop-harvesting sector, including about 1,000 groundfish draggers and 200 scallop vessels.

The Northeastern U.S. processing sector generally comprises small- to medium-sized, single-plant firms that are privately owned. In 1983, approximately 110 firms processed groundfish and scallops in the Northeastern United States, employing about 3,000 persons. Of 48 plants that year that had at least 75 percent of their total production accounted for by groundfish and scallops, more than one-third had fewer than 10 employees; more than two-thirds had fewer than 20 employees. In 1983, the top firm accounted for less than 10 percent of the total quantity of production of fresh and frozen groundfish fillets and scallops in the region; the top 4 firms in 1983 together accounted for 28 percent; the top 8 firms together accounted for 41 percent. Forward integration by processors into marketing channels is limited primarily to wholesaling. However, in recent years, some firms have increased direct marketing to end users such as restaurants and retail grocery chains, particularly in the fresh fillet market.

- o Harvesting capacity has increased in the Northeastern U.S. groundfish and scallop industry.

The number of Northeastern U.S. groundfish draggers, the principal vessel type, rose from 757 in 1979 to 986 in 1983. The largest share increase (72 percent) was in vessels in excess of 100 tons; the number of such vessels rose from 180 in 1979 to 309 in 1983.

- o The Atlantic Canada groundfish and scallop industry is highly concentrated and integrated.

The harvesting sector of the Atlantic Canada fishing industry comprised about 30,000 vessels, employing approximately 52,000 persons in 1982. The great bulk of the vessels are small, inshore vessels, many fishing only part of the year. However, most of the catch of groundfish and scallops is accounted for by large, processor-owned, offshore vessels. In 1982, approximately 290 establishments constituted the processing sector in Atlantic Canada, employing about 23,000 persons. In that year, the largest 8 firms

together operated more than 50 of these establishments and accounted for more than three-quarters of the frozen fillet and block production of Atlantic Canada. In 1983, these eight firms were merged into two "supercompanies" through a restructuring program worked out by the Federal and Provincial Governments, the companies, and the Canadian banks holding the outstanding debt of the companies.

o The production of the Northeastern U.S. groundfish industry is predominantly fresh product.

That segment of the groundfish industry producing products from domestically landed groundfish is geared toward the fresh fish market, with an estimated 90 percent of production marketed in fresh form. This is because fresh products bring a higher price from the consumer and entail less processing and packing and no freezing costs.

o The production of groundfish in Atlantic Canada is predominantly frozen product.

During 1979-82, Atlantic Canada output of groundfish products was approximately 62 percent frozen product (product weight). This emphasis on frozen product is due to factors such as marketing channels, distance from markets and related transportation limitations, and volume of production.

2. The U.S. market.

o Northeastern U.S. consumption of groundfish and scallops varied according to product form and species during 1979-83.

During 1979-83, Northeastern U.S. consumption of whole, fresh groundfish increased irregularly from 307 million pounds in 1979 to 392 million pounds in 1983. Such consumption generally tracks the pattern of landings of groundfish, as imports provide a relatively small share of consumption (10 percent in 1983). Consumption of frozen, whole groundfish, virtually all supplied by imports, declined from 5 million pounds in 1979 to 3 million pounds in 1983.

Apparent consumption of fresh groundfish fillets ranged from 76 million pounds in 1982 to 84 million pounds in 1979. During 1979-83, production trended downward as imports increased. Apparent consumption by species varied, with consumption of fresh flatfish fillets decreasing by 20 percent and consumption of fresh cod fillets increasing by 30 percent during the period. Frozen fillet consumption increased steadily from 224 million pounds in 1979 to 256 million pounds in 1983.

Apparent Northeastern U.S. consumption of scallops dropped from 54 million pounds in 1979 to 47 million pounds in 1983; this decline was a direct result of decreased landings in the United States and Canada owing to weakening scallop stocks available to both countries.

- o Ex-vessel and wholesale prices of groundfish and scallops are determined in competitive markets and largely reflect conditions of supply and demand

Markets for fresh and frozen groundfish and scallops in the Northeastern United States are characterized by a large number of buyers and sellers. Prices, especially for perishable fresh product, are determined in competitive markets and can fluctuate widely on a daily basis in response to changes in supply and demand. Such prices, for both domestic and imported fish, are generally set based on reference prices determined at daily auctions held in Boston and New Bedford, Massachusetts. In the fresh fish market, competition for domestic landings and imported supplies is often great, and changing market conditions reflect regional supply and demand.

- o Northeastern U.S. imports of groundfish and scallops increased substantially during 1979-83, particularly in the fresh groundfish market.

Northeastern U.S. imports of the groundfish products of concern in this study increased from 252 million pounds, valued at \$294 million, in 1979 to 306 million pounds, valued at \$372 million, in 1983. Imports of fresh, whole groundfish increased more than twofold in quantity and threefold in value during 1979-83, and imports of fresh groundfish fillets increased by 73 percent in quantity and by 86 percent in value. Imports of frozen, whole groundfish decreased during the period, but imports of frozen groundfish fillets increased 9 percent in quantity and 22 percent in value.

Northeastern U.S. imports of scallops ranged from 19 million pounds in 1979 to 25 million pounds in 1983. Such imports fluctuated during 1979-83 as available supplies in foreign countries, particularly Canada, were sporadic.

- o Canada was the principal supplier of Northeastern U.S. groundfish and scallop imports during 1979-83, particularly in the fresh market.

Canada, by far, was the principal supplier of Northeastern U.S. imports of groundfish and scallops during 1979-83, accounting for 58 percent of the total quantity and 57 percent of the total value. In the fresh market, Canada provided 99 percent of the quantity of Northeast U.S. imports of fresh, whole groundfish and 95 percent of the quantity of fresh groundfish fillets during 1979-83.

- o Imports accounted for an increasing share of consumption in the Northeastern U.S. fresh groundfish market during 1979-83.

During 1979-83, the ratio of imports to consumption for fresh, whole groundfish in the Northeastern United States more than doubled, from 4 percent in 1979 to 10 percent in 1983. Virtually all of such imports were supplied by Canada. Most of the increase was accounted for by imports of cod.

The ratio of imports to consumption for fresh groundfish fillets in the Northeastern United States nearly doubled during 1979-83, from 12 percent during 1979 to 21 percent during 1983. Again, the great bulk of such imports were supplied by Canada. The market share provided by imports increased for each of the groundfish species of concern in this study.

- o Imports account for nearly all consumption of frozen groundfish products in the Northeastern U.S. market.

Frozen groundfish products generally bring lower prices than fresh and cost more to produce and market. Domestic suppliers prefer to supply the more lucrative fresh market in the United States. A large and growing frozen market, however, exists and is supplied almost exclusively with a ready supply of frozen groundfish imported from other North Atlantic producers, among other foreign sources. During 1979-83, the share of Northeastern U.S. consumption of frozen groundfish fillets held by imports ranged from 89 percent in 1980 to 100 percent in 1982. Imports supply virtually all of such consumption of frozen whole groundfish.

- o Imports from Canada of fresh, whole groundfish are seasonal in nature.

Imports of fresh, whole groundfish generally vary inversely with domestic landings, with import volume peaking in winter months when domestic supplies are low and prices high. In the warmer months increased domestic supplies displace imports as a source of raw material for Northeastern U.S. processors.

Although groundfish landings in Atlantic Canada peak in the summer months, most of this supply is channeled into frozen or saltfish production, since fresh fish prices, as set in the Northeastern United States, are lowest at that time of year. U.S. imports of frozen groundfish from Canada are not nearly as seasonal in nature as fresh groundfish imports.

- o U.S. exports of groundfish and scallops have been small and have accounted for a limited portion of U.S. production.

The fresh groundfish and scallop market in the United States is large and capable of absorbing all domestic supplies. Foreign markets are not well developed for a variety of reasons in addition to the ready U.S. market alternative, including a substantial cost incurred in the transportation of perishable fresh fish to distant overseas markets. Frozen groundfish is not exported owing to low returns relative to the sale of fresh products domestically.

### 3. Factors of Competition in the Northeastern U.S. market.

- o Atlantic Canada producers have held a price advantage vis-a-vis Northeastern U.S. producers at the ex-vessel and wholesale levels for groundfish and scallop products

Ex-vessel prices for groundfish and scallops are consistently lower in Atlantic Canada than in the Northeastern United States. Factors contributing to this include the relatively concentrated buying power of a few, large processors in Atlantic Canada; scarce alternative employment opportunities leading to low opportunity costs of labor of fishermen in Atlantic Canada relative to the Northeastern United States; and the highly seasonal nature of landings in the Atlantic Canada inshore groundfish fishery.

Lower ex-vessel prices in Atlantic Canada contribute to lower prices for Canadian groundfish fillets vis-a-vis domestic fillets in the Northeastern U.S. market, particularly for fresh product. Costs of raw material, or whole fish, constitute a substantial part of fillet production costs. Also, labor costs for fillet producers in Atlantic Canada are lower than those for producers in the Northeastern United States, contributing further to the price advantage held by the Atlantic Canada producers.

At the retail level, the price advantage is not as apparent. This is mainly due to the general lack of product differentiation by country of origin at the retail level, particularly for fresh groundfish fillets and scallops. Also, a substantial portion of groundfish and scallops are consumed in restaurants and institutions, where consumers generally are unable to distinguish the origin of the product.

- o Northeastern U.S. producers generally have held the advantage vis-a-vis foreign firms concerning the channels of distribution and dealer-supplier relationships in the fresh market.

Northeastern U.S. processors are well established in wholesale and distribution channels in the region. Many are old firms, with long business relationships with suppliers and customers. In addition, a natural advantage is given the domestic industry in light of their geographic proximity to the region's markets. These factors provide these firms with the market know-how required to successfully market fresh fish, a commodity with fluctuating supplies and a short shelf-life that Canadian and overseas suppliers have not fully developed.

- o Canadian producers are increasing their efforts at direct marketing in the fresh fillet market.

Field interviews with Canadian and U.S. industry sources revealed increasing efforts by Canadian firms to market fresh groundfish fillets to major buyers, such as supermarket and restaurant chains, both in the Northeastern United States and in other U.S. metropolitan areas. The fresh market, with its potentially higher profit margins, is attractive to Canadian producers who have traditionally supplied the lower margin, frozen market.

- o The level of technology used in harvesting and processing groundfish and scallops is roughly equivalent in major producing nations, with no country having a clear competitive advantage.

Traditionally, fish harvesting and processing both are highly competitive industries, and developments in technology giving a short-run advantage to one producer are quickly disseminated throughout the industry. Further, firms often operate on low margins and cannot afford to invest in research and development of new technology that produces only shortrun benefits.

- o Resource availability appears to favor foreign producers, particularly Canada.

Atlantic Canada groundfish and scallop resources are estimated to be about four times that of the Northeastern United States. This resource

abundance enables Canadian firms to supply large quantities of groundfish and scallop products to the Northeastern U.S. market. Atlantic Canada's production of fresh and frozen groundfish fillets and blocks is about five times greater than apparent Canadian consumption of these products; thus, these producers have a large, exportable surplus and are very dependent on the export market.

- o Northeastern U.S. producers have held the advantage vis-a-vis Canadian producers in reputation for higher quality products in the Northeastern U.S. market.

For biological and technological reasons, Canadian groundfish products have developed a reputation among fish buyers in the United States for poor or inconsistent quality relative to U.S. groundfish. In addition, consumers in the United States may perceive domestic fish as fresher than imported fish.

- o The Canadian dollar has been stable relative to the U.S. dollar and does not appear to have improved the competitive position of Canadian groundfish and scallop products in the Northeastern U.S. market.

From January-March 1979 to April-June 1984, the value of the Canadian dollar dropped by 8.8 percent in nominal terms in relation to the U.S. dollar. However, the inflation rate in Canada was higher than that in the United States and mostly offset the exchange rate gains by Canada, yielding a 1.6-percent decline in the real exchange rate during the period. This decline in real terms did not appear to improve the competitive position of Atlantic Canada groundfish and scallop products in the Northeastern U.S. market during 1979-83.

- o Government assistance programs appear to favor foreign producers, particularly in Atlantic Canada.

Government assistance to the Atlantic Canada groundfish and scallop industry is more comprehensive than that available to the Northeastern U.S. industry. The Northeastern U.S. industry receives Government assistance mainly for vessel construction. Limited assistance is available for operating costs (mainly for gear damage), technical and marketing services, and infrastructure development. Government assistance to the Atlantic Canada groundfish and scallop industry includes vessel construction assistance, operating cost assistance (ice, fuel, equipment), price supports, technical and marketing services, special unemployment insurance, infrastructure development, and various other programs that benefit the industry. Also, the Canadian Government provided substantial financial assistance in a recent restructuring of the depressed processing and offshore harvesting sectors of the groundfish and scallop industry in Atlantic Canada.

Assistance to the fishing industries of Iceland, Denmark, and Norway likewise plays an important role in the performance of those industries. In all three nations, the fisheries provide a major source of employment and export income to the country; this creates incentives for governments to maintain price support programs, vessel and processing plant acquisition assistance, subsidies for fuel and other operating costs, and transfer payments to support fishermen's incomes. In Iceland, most assistance to

fishermen is financed by taxes on fish product exports; frequent devaluation of the Icelandic currency also contributes to export sales of fish, Iceland's major export product. As a member of the European Community (EC), Denmark participates in that organization's price-support programs and benefits from the common tariff on imports of non-EC products. In Norway, development of the petroleum industry in recent years has provided funds to support incomes in the fishing industry.

- o Federal fisheries management policies play a crucial role in influencing production levels and incomes in the groundfish and scallop industries of both the Northeastern United States and Atlantic Canada.

Regulations on total annual harvests by species and by vessel category restrict effort in harvesting on both sides of the border. In the Northeastern United States, management policies have been designed to allow rebuilding of groundfish stocks that were depleted by overfishing in past years, while allowing flexibility on the part of harvesters to respond to changing market conditions for groundfish products. Since 1982, restrictions on scallop harvests have also limited scallopers in the size and, indirectly, the quantity of scallops they can harvest each year.

In Atlantic Canada, an array of management regimes has been implemented in recent years in continuing attempts to rebuild the resources and control capitalization in the groundfish industry. Although the industry has access to large fish resources, the size and capacity of the industry is also large, and continual efforts must be made to restrict entry into the industry through vessel and plant licensing, catch quotas based on gear and vessel size, and, most recently, allocations of fish resources to individual firms operating the offshore trawler fleet.

In both the United States and Canada the intent of Government management is to maintain catch rates at high levels while maintaining incomes in the industry at acceptable levels. Both nations maintain their policies are responsible for increasingly healthy stocks and high levels of production. Likewise, both nations place some blame for the competitive problems of the other nation's industry on inadequate fisheries management policies. This conflict is made more apparent in cases such as scallops, where a single, large resource is jointly managed by both nations.

- o The recent World Court delimitation of the U.S.-Canadian Atlantic maritime boundary has important implications for Northeastern U.S. and Atlantic Canada harvesters fishing the affected grounds, as well as U.S.-Canadian trade in groundfish and scallop products.

The settlement of the U.S.-Canadian maritime boundary dispute by the World Court on October 12, 1984, creates new uncertainty as to the future of both the Northeastern U.S. and Atlantic Canada groundfish and scallop industries. The combination of precarious fish resources and the dislocation of many vessels in both nations' industries has created concern that availability of many major species of fish may be threatened in the near-term future. Preliminary assessments of the situation indicate the Northeastern U.S. harvesters will lose groundfish supplies and gain scallop supplies, but

the poor condition of the scallop resource makes the latter projection subject to question. In addition, the relocation of displaced U.S. vessels from the zone now under Canadian control to other fishing grounds off the Northeastern U.S. coast will put added pressure on those resources and may result in lower overall catches there.

In addition, many Northeastern U.S. fishermen are concerned that any gains in catches accruing to Canada as a result of the boundary decision will be marketed mostly in the Northeastern U.S. fresh fish market since much of the fresh fish supply in that market originates along the Southwestern Nova Scotia coast, the Canadian region closest to the new boundary area.



## DESCRIPTION AND USES

This investigation covers certain groundfish (including cod, haddock, pollock, and flatfish (flounders and sole)) in several product forms (fresh and frozen, whole and filleted) and fresh and frozen scallops.

Cod, haddock, and pollock are all members of the cod family; flounder and sole are members of various flatfish families; and scallops, which are bivalve molluscs, are members of the pectin family. Haddock are found only in the North Atlantic; various types of cod and pollock are found in both the North Atlantic and North Pacific; and the various types of flounder, sole, and scallops are found in marine waters throughout the world. Several species of scallops are harvested in the United States, with the sea scallop being the predominant one, particularly in the northeast region.

The fishermen of the Northeastern United States collectively call cod, haddock, pollock, flounder, and sole as well as other fish that live on or near the seabed--groundfish. The fish under consideration in this investigation are the principal ones sought and harvested by Northeastern U.S. groundfish fishermen.

Most groundfish is deboned in processing plants and sold as fillets, but some groundfish goes to the consumer in the whole form. A small amount of cod is cut into steaks, with the bone left in.

Fresh, chilled, and frozen groundfish reaches the consumer through retail outlets, restaurants, and institutions. In general, fresh fish commands the highest price. Domestically caught fish are mostly sold fresh, taking advantage of the higher price. Imports, usually originating from sources much further from the U.S. market, are generally sold frozen.

Frozen fish blocks, which are a related product form and are of secondary interest in this investigation, consist of skinless fish meat--usually fillets or pieces of fillets--compacted together and frozen into blocks or slabs each weighing over 10 pounds. The blocks are cut into fish sticks and portions-- also product forms related to the items under investigation. Fish sticks and portions are usually battered and/or breaded for the restaurant and retail trade.

Fish blocks generally are produced abroad and imported by the processors (generally referred to as "converters") of fish sticks and portions. Imports of breaded fish sticks and portions are small.

As in the case of groundfish, domestically caught scallops are generally marketed fresh and imports generally enter frozen. Again, the fresh product usually commands a higher price. Scallops are almost always marketed in the United States in the form of solid scallop meats-- no shell or viscera are included. Scallop meat reaches the consumer through the retail and restaurant trade in various styles of preparation, quite often as breaded scallops.

## CUSTOMS TREATMENT

## U.S. Customs Treatment

Tariff treatment.

Groundfish and scallops are provided for in part 3, schedule 1 of the 1984 Tariff Schedules of the United States, Annotated (TSUSA). Whole groundfish are provided for under Tariff Schedules of the United States (TSUS) items 110.15 (pt.) and 110.35 (pt.). Groundfish fillets are provided for under TSUS items 110.50 (pt.), 110.55 (pt.), and 110.70 (pt.). Scallops are provided for under TSUS item 114.45 (pt.). Appendix E contains a copy of pertinent parts of the TSUSA, including current rates of duty applicable to U.S. imports of groundfish and scallops, relevant headnotes, and an explanation of the rates of duty.

Table 1 shows the pre-MTN column 1 rate of duty, the staged rates, and the column 2 rates of duty applicable to U.S. imports of groundfish and scallops. The rates of duty in column 1 are most-favored-nation (MFN) rates and are applicable to imported products from all countries except those Communist countries and areas enumerated in general headnote 3(f) of the TSUSA. <sup>1/</sup> However, such rates do not apply to products of developing countries which are granted preferential tariff treatment under the Generalized System of Preferences (GSP) or the Caribbean Basin Initiative (CBI).

The GSP is a program of nonreciprocal tariff preferences granted by the United States to developing countries to aid their economic development by encouraging greater diversification and expansion of their production and exports. The GSP, implemented by Executive Order No. 11888 of November 24, 1975, and extended by the Trade and Tariff Act of 1984, applies to merchandise imported on or after January 1, 1976, and is scheduled to remain in effect until July 4, 1993. It provides for duty-free treatment of eligible articles imported directly from designated beneficiary developing countries.

The CBI is a program of nonreciprocal tariff preferences granted by the United States to developing countries in the Caribbean Basin to aid their economic development by encouraging greater diversification and expansion of their production and exports. The CBI, implemented by Presidential Proclamation No. 5133 of November 30, 1983, applies to merchandise entered or withdrawn from warehouse for consumption on or after January 1, 1984, and is scheduled to remain in effect until September 30, 1995. It provides for duty-free entry of eligible articles imported directly from designated developing countries in the Caribbean Basin area. All of the articles subject to this investigation could be eligible for such duty-free entry; however, U.S. imports of groundfish and scallops from the Caribbean Basin are negligible.

The rates of duty in column 2 apply to imported products from those Communist countries and areas enumerated in general headnote 3(f) of the TSUSA.

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<sup>1/</sup> The only Communist countries currently eligible for MFN treatment are the People's Republic of China, Hungary, Romania, and Yugoslavia.

Table 1.--Groundfish and scallops: U.S. rates of duty, present and negotiated, by TSUS items

TSUS item No.	Description	Pre-MTN col. 1 rate of duty 1/	(In cents per pound)								Col. 2 rate of duty 2/	
			1980	1981	1982	1983	1984	1985	1986	1987		
110.15 (pt.)	Whole cod, fresh or frozen.	Free	4/	4/	4/	4/	4/	4/	4/	4/	4/	1.
110.15 (pt.)	Whole haddock, fresh or frozen.	Free	4/	4/	4/	4/	4/	4/	4/	4/	4/	1.
110.15 (pt.)	Whole pollock, fresh or frozen.	Free	4/	4/	4/	4/	4/	4/	4/	4/	4/	1.
110.35 (pt.)	Whole flatfish, fresh or frozen.	0.5	4/	4/	4/	4/	4/	4/	4/	4/	4/	1.
110.47 (pt.)	Cod blocks-----	Free	4/	4/	4/	4/	4/	4/	4/	4/	4/	1.25.
110.47 (pt.)	Flatfish blocks-----	Free	4/	4/	4/	4/	4/	4/	4/	4/	4/	1.25.
110.47 (pt.)	Haddock blocks-----	Free	4/	4/	4/	4/	4/	4/	4/	4/	4/	1.25.
110.47 (pt.)	Pollock blocks-----	Free	4/	4/	4/	4/	4/	4/	4/	4/	4/	1.25.
110.50	Groundfish fillets, fresh or frozen, under quota.	1.875	4/	4/	4/	4/	4/	4/	4/	4/	4/	2.5.
110.55 (pt.)	Groundfish fillets, fresh or frozen, over quota:											
110.55 (pt.)	Cod-----	2.5	2.42	2.34	2.27	2.19	2.11	2.04	1.96	1.875	1.875	2.5.
110.55 (pt.)	Haddock-----	2.5	2.42	2.34	2.27	2.19	2.11	2.04	1.96	1.875	1.875	2.5.
110.70 (pt.)	Pollock-----	2.5	2.42	2.34	2.27	2.19	2.11	2.04	1.96	1.875	1.875	2.5.
114.45 (pt.)	Flatfish-----	2.5	2.42	2.34	2.27	2.19	2.11	2.04	1.96	1.875	1.875	2.5.
114.45 (pt.)	Scallops, fresh or frozen-----	Free	4/	4/	4/	4/	4/	4/	4/	4/	4/	Free.

1/ Rate effective prior to Jan. 1, 1980.  
 2/ Rate negotiated in the Tokyo round of the Multilateral Trade Negotiations in Geneva, to be achieved through 8 annual reductions, with the final reduction to be effective Jan. 1, 1987.  
 3/ Rate provided in the Tariff Act of 1930.  
 4/ Rate not negotiated in the Tokyo round of the Multilateral Trade Negotiations.

## Quotas

Imports of groundfish fillets have been subject to a tariff quota since January 1, 1939. Annual within-quota imports are limited to 15 million pounds or 15 percent of the average annual U.S. consumption of groundfish fillets during the 3 preceding calendar years, whichever is the greater. Of the total quantity of within-quota groundfish fillets entitled to enter in any calendar year, not more than one-fourth can be entered during the first 3 months, not more than one-half during the first 6 months, and not more than three-fourths during the first 9 months of that year.

TSUS items 110.50 covers the "within-tariff rate quota" imports of groundfish fillets and item TSUS 110.55 covers the "over quota" imports. As a general practice, however, Customs classifies both the within-quota imports and over-quota imports as over-quota at the time the product enters. Customs later determines which imports qualify for quota status--on the basis of the time of entry--and then rebates to the importer the overpayments of duty. The following tabulation shows the annual quota for groundfish fillet imports during 1979-83 (as provided by the U.S. Customs Service):

<u>Year</u>	<u>Quota</u> <u>(1,000 pounds)</u>
1979-----	42,744
1980-----	45,241
1981-----	47,264
1982-----	48,098
1983-----	49,489

The rate for TSUS item 110.55 is being reduced, in stages, to 1.875 cents per pound by January 1, 1987, thus ending the tariff-rate quota.

## Other

U.S. imports of groundfish and scallops are subject to inspection by the Food and Drug Administration to ensure wholesomeness and compliance with the standards of identity and labeling requirements that apply to domestic groundfish and scallops.

In 1976, the Fishery Conservation and Management Act of 1976 (FCMA) was enacted (Public Law 94-265). The FCMA, which is administered by the National Marine Fisheries Service (NMFS) of the U.S. Department of Commerce, established a 200-mile fishery conservation zone (FCZ) within which the United States exercises exclusive management of fishery resources. Under the FCMA, U.S. imports of any fishery product must be embargoed from a country with which the United States cannot conclude an international fishery agreement allowing U.S. fishing vessels equitable access to fisheries over which that country asserts exclusive fishery management authority, as recognized by the United States. No embargoes on U.S. imports of groundfish and scallops have been imposed under the FCMA.

U.S. imports of whole cod, haddock, and yellowtail flounder are subject to minimum size restrictions of 17, 17, and 14 inches, respectively. These restrictions are consistent with U.S. fishery management restrictions that apply to domestic fishermen. Imports of scallops from Canada that are harvested on the Georges Bank fishing grounds must meet a minimum meat count of 35 per pound, similar to restrictions on U.S. harvesters of scallops.

#### Previous Commission investigations

Since 1978, the U.S. International Trade Commission has addressed the question of injury regarding certain fish and certain shellfish three times. In each case, the Commission unanimously concluded that there was no injury to the U.S. industry, or threat thereof.

On June 10, 1978, the Fishermen's Marketing Association of Washington, Inc., Seattle, WA, filed a petition with the Treasury Department concerning certain fish and fish products from Canada that enter the United States. On June 27, 1978, the Commission received advice from the Department of the Treasury that a bounty or a grant was being paid by the Government of Canada on certain fish and fish products exported to the United States. The Commission on July 13, 1978, instituted investigation No. 303-TA-3 to determine whether an industry in the United States was being or likely to be injured, or is prevented from being established, by reason of the importation into the United States of such merchandise from Canada. <sup>1/</sup> The fish and fish products covered by that investigation were whole cod, fresh, chilled, or frozen; salted, pickled, smoked, or kippered cod, cusk, haddock, hake or pollock; cod and flatfish (except turbot) frozen in blocks of 10 pounds or more each; and flatfish fillets, fresh, chilled, or frozen (except halibut or turbot). On September 27, 1978, the Commission determined by a vote of 5 to 0 that an industry in the United States was not being injured, was not likely to be injured, and was not prevented from being established, by reason of the importation of certain duty-free fish from Canada. Although the Commission determined total U.S. imports from Canada of groundfish and groundfish products increased as a percent of apparent U.S. consumption, the percentage of apparent U.S. consumption accounted for by U.S. domestic producers also increased; therefore, the Commission found the impact of the imports from Canada was primarily on imports from other sources, which declined as a percentage of apparent domestic consumption. Increased landings and rising prices for most categories of groundfish and groundfish products indicated to the Commission that the financial situation of the U.S. producers was improving. The Commission held that the bounties and grants found by Treasury had been virtually eliminated and the remaining bounties and grants were not likely to have an injurious impact on the U.S. industry.

On January 9, 1979, the Commission received advice from the Department of the Treasury that a bounty or grant was being paid with respect to certain duty-free fish and certain duty-free shellfish imported from Canada. A petition had been filed with the Treasury Department on December 30, 1977, by

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<sup>1/</sup> Certain Fish From Canada, Investigation No. 303-TA-3, USITC Publication 919, September 1978.

the National Federation of Fishermen and the Point Judith Fishermen's Cooperative Association of Narragansett, RI. The Commission's investigation No. TA-303-9 was instituted on January 18, 1979. <sup>1/</sup> The imported articles that were the subject of that investigation were whole cusk, haddock, hake, and pollock, whether fresh, chilled, or frozen; fish blocks made of Atlantic ocean perch, haddock, whiting, and other fish blocks except those made of cod, flatfish, or pollock; live lobsters; and scallops. On April 9, 1979, the Commission determined by a vote of 5 to 0 that an industry in the United States was not being injured, was not likely to be injured, and was not prevented from being established, by reason of the importation of certain fish and certain shellfish from Canada. The Commission found that U.S. landings of all four species of whole fish increased, but the ratio of imports from Canada to apparent U.S. consumption fell. Despite the fact that the U.S. dollar had appreciated in relation to the Canadian dollar, the Commission had no information that the prices for whole fish from Canada sold in the United States differed from those for U.S. whole fish. As for fish blocks, the Commission determined that virtually all fish landed in the United States are sold fresh, since fresh fish commands a higher price per pound than frozen fish. The Commission also found that U.S. landings of sea scallops and the number of scallop dredges over 5 tons had increased, leading to increased employment opportunities for the scallop fishermen, whereas Canada's share of the U.S. scallop market had remained fairly steady. Also, the Commission held that the fishery management plans initiated in conjunction with the establishment of the 200-mile limit would provide a comprehensive program for expanding U.S. production of the subject groundfish and shellfish.

On August 20, 1979, an amended petition was filed by the Fishermen's Marketing Association of Washington, Inc., Seattle, WA, and the Coast Druggers Association, Westport, WA, alleging increasing imports of groundfish and groundfish products were causing serious injury to the U.S. fishing industry. The Commission instituted investigation No. TA-201-41 on September 5, 1979, to determine whether fresh, chilled, or frozen cod, cusk, haddock, hake, pollock, whiting, wolffish, Atlantic ocean perch, pacific rockfish (including Pacific ocean perch), flounder, turbot, and all other flatfish except halibut, were being imported into the United States in such increased quantities as to be a substantial cause of serious injury, or the threat thereof, to the domestic industry producing articles like or directly competitive with the imported articles. <sup>2/</sup> The Commission, on January 29, 1980, determined by a vote of 3 to 0 that the above-mentioned groundfish were not being imported into the United States in such increased quantities as to be a substantial cause of serious injury, or threat of serious injury, to the domestic industry producing the like or directly competitive products. The Commission determined that fresh or chilled groundfish products were not like or directly competitive with frozen groundfish products. The Commission determined imports had increased within the meaning of section 201(b)(1); however, they also determined the bulk of the subject imports were frozen, but nearly all

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<sup>1/</sup> Certain Fish and Certain Shellfish From Canada, Investigation No. 303-TA-9, USITC Publication 966, April 1979.

<sup>2/</sup> Certain Fish, Investigation No. TA-201-41, USITC Publication 1028, January 1980.

the production of the domestic industry was marketed fresh. The only issue that remained was whether increased imports of whole fish and fresh fillets were a substantial cause of serious injury or threat thereof to the U.S. industry. The Commission determined that imports might well have been a problem to the U.S. industry, but that an overly rapid expansion of the fishing fleet on the west coast was the primary problem of West coast U.S. fishermen, and that the conservation quotas on the east coast were the primary problem for east coast fishermen.

#### Foreign Customs Treatment

With the exception of the United States and Canada, the Customs Cooperation Council Nomenclature (CCCN) is used as the basis for tariff classifications by most countries. The CCCN classifies fish and shellfish, including groundfish and scallops, in chapter 3 under headings 03.01 and 03.03.

The rates of duty applicable to imports of groundfish and scallops into Canada, the European Community (EC) and Japan, the major markets for such products, are shown in table 2.

Imports of U.S. groundfish and scallops into Japan are subject to mandatory inspection by the Ministry of Health and Welfare (MHW) under the Japanese Food Sanitation Law. A permit must be issued by the MHW in order for such imports to pass through customs. The imported items are generally sampled and inspected for compliance with Government regulations on food sanitation, additives, and labeling. The requirements are the same for domestic and imported articles. In addition, industry groups may voluntarily request inspection of imported groundfish and scallops on a fee basis to assure that the quality of the imported products is comparable with the Japanese industry quality standards. The import procedures and inspection, both mandated and voluntary, generally have not prevented Canadian or U.S. exports of groundfish and scallops to Japan.

Japan also has an import quota system which includes certain groundfish and certain shellfish, including scallops. The quotas are announced once or twice a year and are allocated to various trading firms, users, and joint-venture <sup>1</sup>/<sub>investors</sub> through import licenses. U.S. exports to Japan of the quota items are virtually nonexistent.

Imports of groundfish and scallops into Canada are subject to inspection by the Department of Fisheries and Oceans. Such imports are inspected to ensure safety, minimum quality, and proper labeling.

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<sup>1</sup>/ Joint ventures are usually arrangements by which fishermen from one country deliver fish to processors (usually a processing ship) from another.

Table 2.--Groundfish and scallops: Selected rates of duty, present and negotiated, in principal foreign markets

(Percent ad valorem)			
Market	Description of commodity and foreign tariff item Number	Present rate of duty 1/	Negotiated rate of duty 2/
Canada-----	Mackerel, herring, salmon, and all other fish, n.o.p., fresh, salted, pickled, smoked, dried, or boneless (11500-1).	Free	3/
	Shellfish, fresh, n.o.p. (12400-1)-----	Free	3/
EC-----	Fish, fresh (live or dead), chilled, or frozen: (03.01)		
	Saltwater fish:		
	Whole, headless, or in pieces:		
	Cod ( <u>Gadus morhua</u> , <u>Boreogadus saide</u> , <u>Gadus ogac</u> ):		
	Fresh or chilled-----	13.1%	12%.
	Frozen-----	13.1%	12%.
	Saithe ( <u>Pollachias virens</u> ):		
	Fresh or chilled-----	15%	3/
	Frozen-----	15%	3/
	Haddock ( <u>Melanogrammus aeglefinus</u> ):		
	Fresh or chilled-----	15%	3/
	Frozen-----	15%	3/
	Flounder ( <u>Platichthys flesus</u> ):		
	Fresh or chilled-----	15%	3/
	Frozen-----	15%	3/
	Hake ( <u>Merluccius spp.</u> ):		
	Fresh or chilled-----	15% 4/	3/
	Frozen-----	15% 4/	3/
	Fillets:		
	Fresh or chilled-----	18% 4/	3/
	Frozen:		
	Of cod ( <u>Gadus morhua</u> , <u>Boreogadus saida</u> , <u>Gadus ogac</u> ).	15% 5/	15%. 5/
	Of saithe ( <u>Pollachias virens</u> ).	15%	3/
	Of haddock ( <u>Melanogrammus aeglefinus</u> ).	15%	3/
	Of hake ( <u>Merluccius spp.</u> )-----	15%	3/
	Of flounder ( <u>Platichthys flesus</u> ).	15%	3/

See footnotes at end of table.

Table 2.--Groundfish and scallops: Selected rates of duty, present and negotiated, in principal foreign markets--Continued

(Percent ad valorem)			
Market	Description of commodity and foreign tariff item Number	Present rate of duty 1/	Negotiated rate of duty 2/
EC- Con.	Crustaceans and molluscs, whether in shell or not, fresh (live or dead), chilled, frozen, salted, in brine or dried; crustaceans, in shell, simply boiled in water: (03.03)		
	Molluscs:		
	Other:		
	Frozen:		
	Coquilles St. Jacques ( <u>Pecten maximus</u> ).	8%	3/
	Other-----	8%	3/
	Other:		
	Other-----	8%	3/
Japan-----	Fish, fresh (live or dead), chilled, or frozen:		
	Other:		
	Other:		
	Tara (cod and pollock):		
	Fresh (live or dead) or chilled (excluding fillets):		
	Tara (cod and pollock), (03.01222).	10%	3/
	Frozen (excluding fillets):		
	Tara (cod and pollock), (03.01231).	7.5%	6%.
	Fillets:		
	Fresh or chilled (03.01238)---	10%	3/
	Frozen (03.01239)-----	10%	3/
	Other:		
	Live:		
	Other (03.01242)-----	5%	3/
	Fresh or chilled (excluding fillets):		
	Other (03.01261)-----	3.8%	3/
	Frozen (excluding fillets):		
	Other (03.01279)-----	3.8%	3/
	Fillets:		
	Fresh or chilled (03.01281)---		3/
	Frozen:		
	Other (03.01289)-----		3/

See footnotes at end of table.

Table 2.--Groundfish and scallops: Selected rates of duty, present and negotiated, in principal foreign markets--Continued

(Percent ad valorem)			
Market	Description of commodity and foreign tariff item Number	Present rate of duty 1/	Negotiated rate of duty 2/
Japan--Con.	Crustaceans and molluscs, whether in shell or not, fresh (live or dead), chilled, frozen, salted, in brine or dried; crustaceans, in shell, simply boiled in water:		
	Other:		
	Fresh (live or dead), chilled, or frozen:		
	Adductors of shellfish (03.03216).	10%	3/

1/ Current duty rates applicable to imports from the United States.

2/ Final rates negotiated in the Tokyo round of the Multilateral Trade Negotiations.

3/ No concession granted in the Tokyo round of the Multilateral Trade Negotiations.

4/ Duty rate reduced to 8 percent for silver hake (Merluccius bilinearis) within the limits of an annual tariff quota of 2,000 tons to be granted by the competent authorities of the European Community.

5/ Duty rate reduced to 8 percent for cod of the species Gadus morhua within the limits of an annual tariff quota of 10,000 tons to be granted by the competent authorities of the European Community.

#### Nontariff Barriers

The Common Organization of the Market for Fishery Products (CFP) is the principal policy instrument which regulates fisheries trade with the EC. The CFP provides for a reference price system which sets minimum import prices; thus, the CFP can suspend imports of products which are at prices below the reference price. The EC has suspended the imports of certain fish products 12 times, the most recent being cod (frozen fillets) into the United Kingdom and Ireland from July 22, 1981, until October 30, 1981.

The EC, in a bilateral agreement with Canada (December 1981), agreed to reduce tariff rates on a number of fishery products, including frozen whole cod and frozen cod fillets, in exchange for guaranteed fishing allocations within Canada's 200-mile limit. These reduced tariff rates however, are within the legal limits under the General Agreement on Tariff and Trade (GATT). Although the EC does not specifically name Canada as the beneficial party, imports of the cod species Gadus morhua into the EC are permitted only when accompanied by a certificate of origin.

## U.S. INDUSTRY

For the purpose of this report, the Northeastern United States includes the Atlantic Coastal States from Maine to Virginia, inclusive. This region accounted for \$659 million in commercial fish landings (all species) in 1983, or 28 percent of the U.S. total. In 1983, Northeastern U.S. production of fresh and frozen groundfish fillets, frozen blocks and scallops amounted to \$403 million.

The groundfish and scallop industries of the Northeastern United States--including both harvesting and processing sectors--employed some 12,000 persons in 1982, approximately 0.05 percent of the region's labor force. This employment is concentrated in several coastal communities, with scattered employment in numerous smaller communities as well. In addition, indirect employment is generated in related industries, including shipbuilding, gear and equipment, retailing, energy, and transportation.

The principal products of the industry are, in decreasing order of value, fresh and frozen scallops, fresh groundfish fillets, frozen groundfish fillets, and frozen blocks of groundfish. In addition, a small, but indeterminate, quantity of dressed (gutted) groundfish is marketed without further processing.

Domestically landed groundfish and scallops are almost always channeled into the fresh fish market, including retail fish stores, supermarkets, restaurants, and institutions (hospitals, schools, and the like). This market brings higher prices and requires less effort in the form of freezing and packaging. Exceptions to this fresh-market emphasis by domestic producers include sales of frozen fish to the U.S. Government and periods of excessive domestic supply relative to market demand which results in low prices and in surplus supplies being frozen.

The major groundfish and scallop resources available to Northeastern U.S. fishermen are located in the continental shelf waters off the New England coast, primarily Georges Bank and the Gulf of Maine. Georges Bank holds the largest Northeastern U.S. concentrations of sea scallops, but occasional commercial concentrations are found off the Maine coast and in the waters off New Jersey. Cod, haddock, and the principal flatfish species are also found on Georges Bank, with additional resources extending into the Gulf of Maine and, particularly with flatfish, down as far as the lowest mid-Atlantic States. Fishermen concentrate their efforts on the resources off New England, with additional activity off the mid-Atlantic coast and some "inshore" effort by small vessels within the 0- to 3-mile jurisdictions of the States.

There are distinct differences between the harvesting and processing sectors of the Northeastern U.S. fishing industry. There is little vertical integration: only a very few processors own vessels, and processing by fishermen is limited primarily to cooperative-owned filleting houses. Fishermen catch the fish, landing flatfish completely unprocessed; cod, haddock, and pollock are eviscerated; and scallops are shucked and therefore almost completely processed. Processors--exclusively an onshore sector in the Northeastern United States--fillet and market groundfish and pack and market scallops. Concentration in processing, by port, is usually much higher than in harvesting, although on a regionalized basis, this relative concentration declines considerably. Fishermen, exempt from antitrust laws prohibiting

mergers, have in some ports formed cooperatives in order to increase their market power, but this has not been successfully carried out on a regionwide basis.

The "open-access" nature of the fish resources makes for vigorous competition between fishermen for the stocks, and results in high levels of effort and capitalization. Such high levels of effort have led the Federal government, since 1977, to occasionally apply restrictions on fishermen, such as annual catch quotas, in an effort to stabilize the industry and protect the resources.

### Harvesting Sector

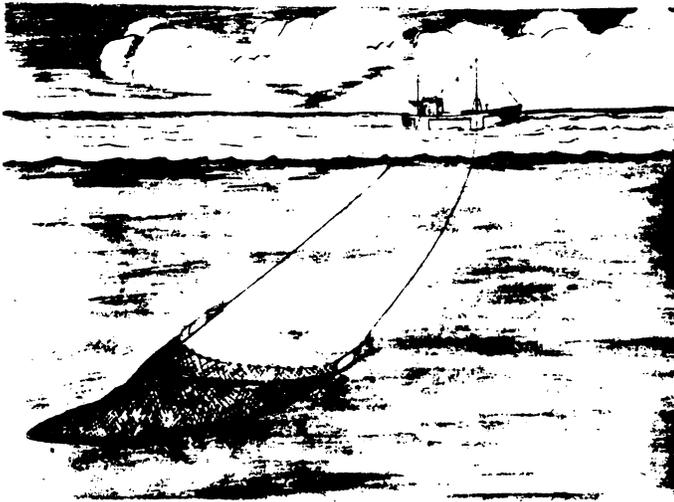
The harvesting sector of the Northeastern U.S. fishing industry consists of several hundred vessels operating from a number of ports scattered along the entire coastline of the region. These vessels range in size from small skiffs less than 18 feet long to large trawlers over 100 feet long, with a few vessels in excess of 150 feet. Most, however, fall within the 40-to 80-foot category. Crews on these vessels range from one or two persons on small boats to upwards of 10 persons on the larger vessels. The typical vessel employs a captain, one or two mates, a cook, an engineer, and a varying number of deckhands. Most vessels are owned by the skipper, either directly or through a corporation set up for that purpose. Horizontal integration is limited; some persons or groups of investors may own 3 to 6 vessels, but single-vessel ownership is, by far, most common. Also, most fishermen are not forward integrated into fish processing; instead, they sell their catch directly off the boat to dealers or processors.

### Technology

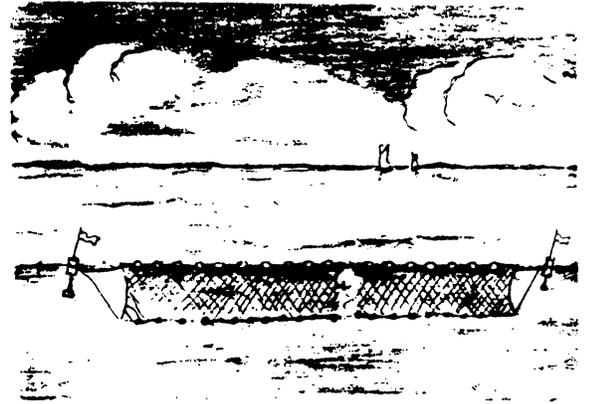
Most groundfish vessels in the Northeastern United States are stern otter trawlers; that is, they tow an otter trawl, or long, bag-shaped net, from the stern of the vessel, as opposed to trawlers of decades past, which towed from the side (fig. 1). The stern trawler now dominates (there are some old side trawlers still operating) and is considered more efficient. Moreover, wood-hulled vessels are being replaced over time with hulls made of steel or fiberglass because of wood's less desirable qualities with respect to wear and tear and flammability.

Another type of vessel with a long history, but for which there is some renewed interest, is the longliner. Because of automation developments, this gear type, which was previously seen as inefficient because of high labor and bait costs and low catch rates relative to those of otter trawlers, has stimulated new interest as a means by which high-quality fish can be harvested and landed. By avoiding crushing in a net and allowing for more selectivity with respect to species and size, the automated longliner has attracted a number of investors. The principal gear on these vessels will be Norwegian-produced, automated longline gear, the state of the art of such gear. However, some drawbacks of longlining (automated or otherwise) include the high cost of bait and the institutional structure of Northeastern U.S. groundfish marketing, which as yet does not allow for premiums to be paid to fishermen for higher quality fish.

Figure 1.--Major gear types for groundfish and scallop vessels.



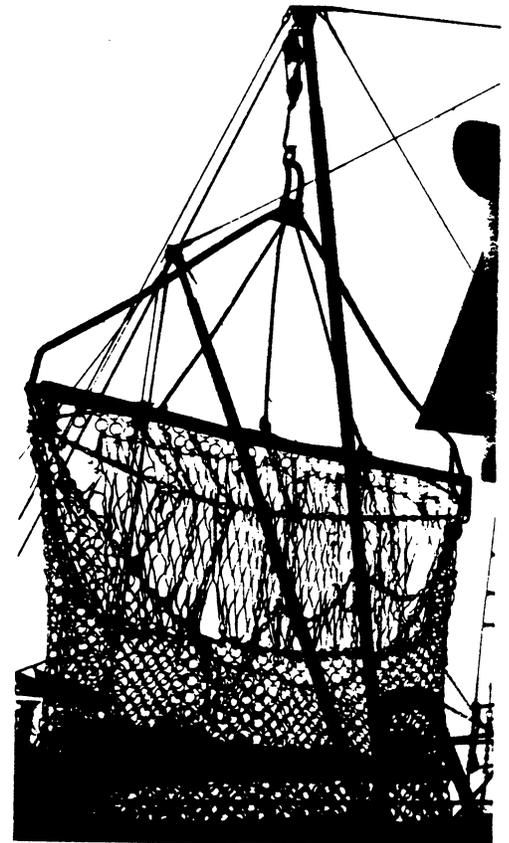
Otter Trawl



Gill Net



Longline



Scallop Dredge

There is considerable "inshore" harvesting carried out in the Northeastern United States; inshore vessels concentrate their effort close to shore, either along the coastline or in or around bays and inlets. A common gear type used in inshore fishing is the gill net. This consists of a long, rectangular net, frequently extending several hundred feet in length (but only a few feet high), suspended in the water by a system of buoys and anchors. Fish swimming into the net are caught by their gills and trapped; the fisherman daily travels the length of the gill-net removing the catch.

The use of electronics (other than computers) in harvesting operations is widespread. For navigation, radar and loran C are both widely used systems employed on all but very small inshore vessels. CB radios and telephones are common as well. "Fish-finders" (sonar systems) are only slightly less common but still considered valuable if affordable; in addition to locating schools of fish, sonar helps locate potential obstructions to gear. Most of these types of electronic gear can cost upwards of several thousands of dollars.

#### Number of vessels and employment

Most fishing vessels which target the fish that are the subject of this report are located in a relatively small number of communities along the Northeastern U.S. coast (fig. 2). In terms of the total quantity of landings (an indication of employment), the eight largest Northeastern U.S. ports are (in declining order) Gloucester, MA; New Bedford, MA; Point Judith, RI; Rockland, ME; Portland, ME; Cape May, NJ; Hampton Roads, VA; and Boston, MA. Vessels from these ports, which range throughout the Northeastern United States, participate in varying degrees in the harvesting of groundfish and scallops.

Data on groundfish and scallop harvesting in the Northeastern United States are available by vessel gear types and vessel tonnage classes. Vessels are classified on the basis of the primary gear type used during the year; this avoids double counting, as many, if not most, vessels employ different gear types during different seasons of the year.

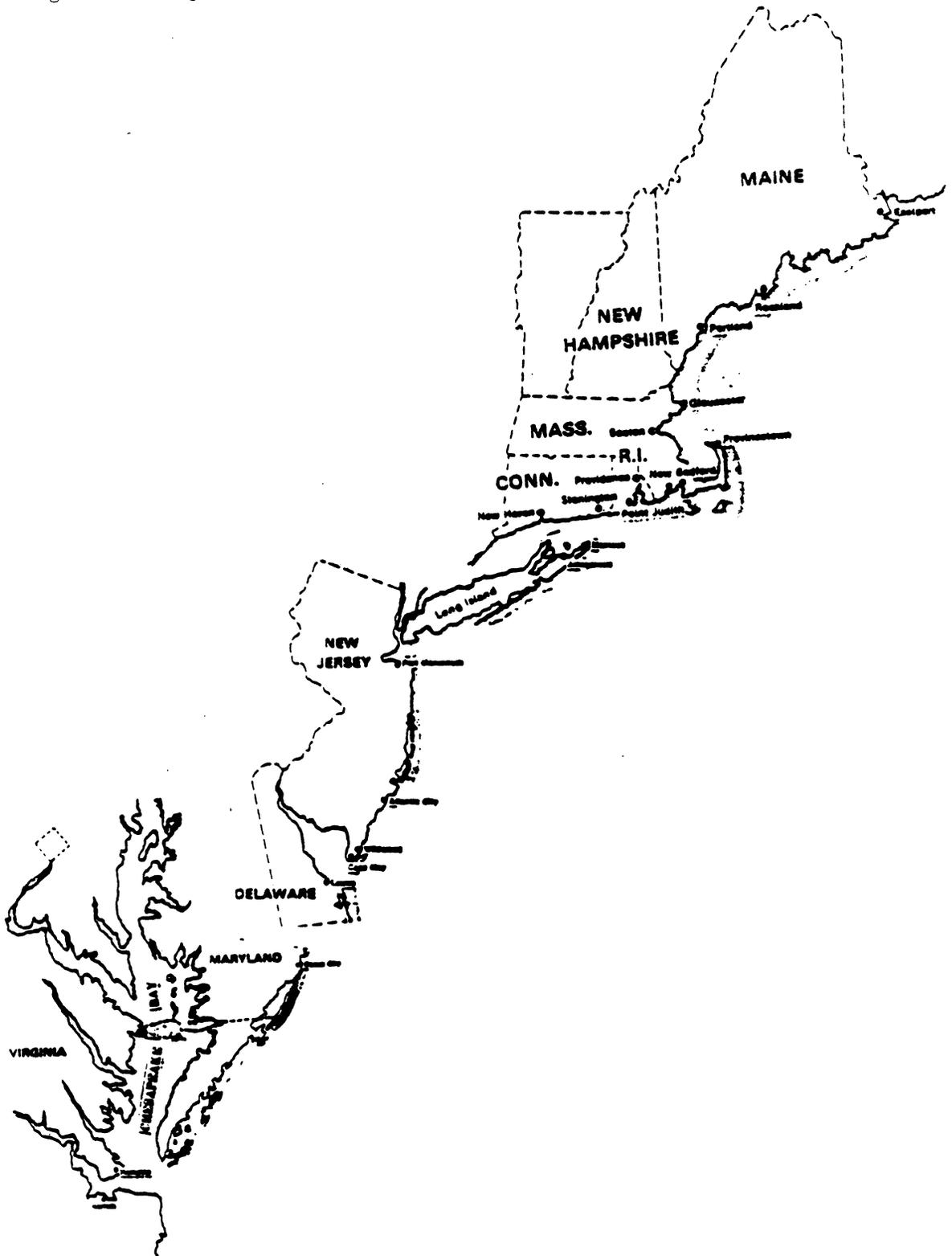
Otter trawls are the most common type of gear used by vessels harvesting groundfish. Table 3 presents the number of vessels employing otter trawl gear that landed groundfish in New England during 1979-83.

In 1983, vessels employing otter trawls, or draggers as these vessels are commonly called, accounted for 92 percent (by volume) of all cod, haddock, and yellowtail flounder harvested in New England. The majority (57 percent in 1983) of primary-gear draggers are large vessels, over 100 gross tons. <sup>1/</sup> The number of these large vessels increased from 107 in 1979 to 156 in 1983. The number of midsized (26 to 100 tons) primary-gear draggers fell from 97 in 1979 to 79 in 1981 and then increased to 101 in 1983. The number of small (5 to 25 tons) primary-gear draggers fell from 14 in 1979 to 10 in 1980 before rising to 18 in 1983. The total number of vessels using otter trawl gear rose by 30 percent, from 757 in 1979 to 986 in 1983.

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<sup>1/</sup> A ton, as used in vessel measurement, is a measure not of weight but of volume: 1 gross ton equals 100 cubic feet of interior vessel space, but 1 net ton equals 100 cubic feet of vessel hold capacity.

Figure 2.--Major fishing ports of the Northeastern United States.



Source: Reprinted from National Marine Fisheries Service, Fisheries Statistics of the U.S., 1977.

Table 3.- Number of vessels employing otter trawl gear, primary and total, 1/ by size classes, 1979-83

Year	5 to 25 tons		26 to 100 tons		Over 100 tons		Total	
	Pri- mary	Total	Pri- mary	Total	Pri- mary	Total	Pri- mary	Total
1979-	14	210	97	367	107	180	218	757
1980-	10	219	87	410	130	217	227	846
1981-	12	225	79	427	114	238	205	890
1982-	14	251	88	443	143	281	245	975
1983-	18	219	101	458	156	309	275	986

1/ For the purposes of this discussion, primary gear refers to vessels employing otter trawls more than 135 days at sea per year and total includes vessels employing otter trawl gear at any time during the year.

Source: Compiled from unpublished statistics of the U.S. Department of Commerce, National Marine Fisheries Service.

The number of longliners and gill netters 1/ in New England decreased during 1979-83, as shown in the following tabulation, compiled from unpublished statistics of the National Marine Fisheries Service:

<u>Year</u>	<u>Longliners</u>	<u>Gill netters</u>
1979- .....	43	112
1980- .....	37	112
1981- .....	42	137
1982- .....	31	131
1983- .....	26	101

The number of longliners decreased irregularly from 43 in 1979 to 26 in 1983 following a 44-percent decline in average pounds of fish (all species) landed per vessel from 117,787 pounds in 1979 to 65,574 pounds in 1983 (NMFS unpublished data). Average prices received by these vessels, however, increased from \$0.52 per pound in 1979 to \$1.19 in 1983, attributable perhaps to a shift in species mix to more valuable species. Meanwhile, the number of gill netters increased from 112 in 1979-80 to 137 in 1981 following a 9-percent rise in pounds landed (all species) per vessel, from 163,291 pounds in 1979 to 177,573 pounds in 1981, and a 31-percent increase in the average price received, from \$0.23 in 1979 to \$0.30 in 1981. Both catch rates and prices subsequently declined to 156,183 pounds per vessel at an average price of \$0.27 per pound in 1983, bringing the number of gill net vessels down to 101 in 1983.

1/ Vessels deriving 50 percent or more of their income from either line trawl gear or gill nets.

Table 4 shows the number of vessels landing scallops in New England during 1979-83.

Table 4.- Number of vessels landing scallops in New England, primary and total, by size classes, 1979-83

Year	5 to 25 tons		26 to 100 tons		Over 100 tons		Total	
	Pri- mary	Total	Pri- mary	Total	Pri- mary	Total	Pri- mary	Total
1979-----	1/	28	6	82	48	173	54	283
1980-----	1/	26	5	70	62	247	67	343
1981-----	1/	13	5	70	72	262	77	345
1982-----	1/	10	1/	30	86	196	86	236
1983-----	1/	26	6	67	102	198	108	291

1/ Fewer than 3 vessels.

Source: Compiled from unpublished data of the U.S. Department of Commerce, National Marine Fisheries Service.

In 1983, there were 291 registered fishing vessels (5 tons and greater) that employed scallop gear at least part of the year, representing an increase of 3 percent from 283 such vessels in 1979 and a decline of 16 percent from the high of 345 vessels in 1981. Of these vessels, approximately 54 were primary-gear scallopers (employing scallop gear during at least 135 days at sea) in 1979. The number of primary-gear scallopers doubled to 108 in 1983.

Because the scallop industry of the Northeastern United States centers on the sea scallop fishery, which is almost exclusively an offshore fishery, the bulk of the commercial sea-scallop-fishing effort is conducted by large vessels (in excess of 100 tons). These vessels made up 94 percent of the primary-gear scallop fleet in 1983. There is an inconsequential number of primary gear scallop vessels in the Northeastern United States in the range of 5 to 100 gross tons. A number of fishing vessels between 5 and 100 tons, however, employ scallop gear as a secondary gear type; 93 such vessels existed in 1983 compared with 83 in 1981 and 110 in 1979.

Table 5 shows employment on fishing vessels utilizing otter trawls as a primary gear type and on vessels utilizing otter trawls at any time that landed groundfish in New England during 1979-83.

Employment on New England fishing vessels primarily utilizing otter trawls increased irregularly from 1,276 persons in 1979 to 1,550 persons in 1983, or by 21 percent. Employment on New England vessels utilizing otter trawls at any time increased irregularly from 4,947 persons in 1979 to 6,202 persons in 1983, or by 25 percent. The largest increase in employment on vessels utilizing otter trawls as a primary gear type was found among large vessels (over 100 tons); such employment increased from 749 persons in 1979 to 1,092 persons in 1983, or by 46 percent. Employment on midsize vessels (26 to 100 tons) utilizing otter trawls primarily fell from 485 persons in 1979 to 352 persons in 1982, recovering somewhat to 404 persons in 1983. 17

Table 5.--Employment on fishing vessels utilizing otter trawls, primary and total, by size classes, 1979-83

Year	5 to 25 tons		26 to 100 tons		Over 100 tons		Total	
	Pri- mary	Total	Pri- mary	Total	Pri- mary	Total	Pri- mary	Total
1979-----	42	672	485	2,320	749	1,955	1,276	4,947
1980-----	30	687	435	2,485	910	2,429	1,375	5,601
1981-----	36	711	395	2,103	798	2,464	1,229	5,278
1982-----	42	795	352	2,124	1,001	2,967	1,395	5,887
1983-----	54	711	404	2,236	1,092	3,255	1,550	6,202

Source: Compiled from unpublished data of the U.S. Department of Commerce, National Marine Fisheries Service.

The number of employees on longliners and gill netters in New England during 1979-83 is shown in the following tabulation, estimated from unpublished data of the National Marine Fisheries Service:

<u>Year</u>	<u>Longliners</u>	<u>Gill netters</u>
1979-----	125	325
1980-----	126	325
1981-----	139	397
1982-----	102	393
1983-----	88	303

Between 1979 and 1981, employment on longliners increased by 11 percent, from 125 in 1979 to 139 in 1981; employment then dropped by 37 percent to 88 in 1983. Employment on gill netters, meanwhile, rose from 325 in 1979 to a 1981 peak of 397 and then declined sharply from 1982 to 1983 to 303, or by 7 percent during 1979-83. In both instances, employment fell despite a trend toward larger crew size, as more and more vessels left the industry or switched to alternative gear types.

Table 6 shows employment on vessels using scallop gear as a primary gear type (more than 135 days annually) and vessels that landed scallops in New England using scallop gear at any time during 1979-83.

Total employment during 1979-83 on all vessels using scallop gear rose from 2,477 in 1979 to a peak of 3,512 in 1981 and then declined to 2,466 in 1982 but rose to 2,821 in 1983, for a net increase of 344, or 14 percent, during the period. Employment on those vessels using scallop gear as their primary gear rose by nearly 100 percent, from 570 in 1979 to 1,086 in 1983, representing a net increase of 516 persons. Some 492 of these new crew members were employed on vessels in excess of 100 tons, which constitute the majority of the fleet.

Table 6.- Employment on vessels using scallop gear, primary and total, by size classes, 1979-83

Year	5 to 25 tons		26 to 100 tons		Over 100 tons		Total	
	Pri- mary	Total	Pri- mary	Total	Pri- mary	Total	Pri- mary	Total
1979- ----	<u>1</u> /	112	42	574	528	1,903	570	2,477
1980- ----	<u>1</u> /	104	50	700	682	2,717	732	3,417
1981- ----	<u>1</u> /	52	45	630	792	2,882	837	3,512
1982- ----	<u>1</u> /	40	<u>1</u> /	270	946	2,156	946	2,466
1983- ----	<u>1</u> /	104	66	737	1,020	1,980	1,086	2,821

1/ Not available.

Source: Estimated by the staff of the U.S. International Trade Commission on the basis of unpublished statistics of the U.S. Department of Commerce, National Maine Fisheries Service.

### Landings

The production of whole, fresh fish by the harvesting sector is generally referred to as landings. Groundfish and scallops are landed dockside by fishing vessels, where the catch is then transferred to nearby processors or distributors. Groundfish generally are landed gutted and bled or, less commonly, whole; scallops usually are landed already shucked.

Most fishing vessels in the Northeastern U.S. groundfish fisheries catch a mix of species because of the mingling of these species and the inability of trawl gear to effectively target certain species. Overall catches of groundfish in a region may reflect total fishing effort, but fluctuations in catch among species often reflect biological conditions of the particular species population.

During 1979-83, annual U.S. landings of all groundfish increased from 651 million pounds, valued at \$190 million, in 1979 to 787 million pounds, valued at \$250 million, in 1983 (table 7). Although there is a substantial amount of groundfish caught in the Pacific Ocean, this report will focus on the Atlantic catch.

Annual U.S. landings of Atlantic groundfish increased from 408 million pounds, valued at \$135 million, in 1979 to 452 million pounds, valued at \$143 million, in 1980 and then declined to 410 million pounds, valued at \$150 million, in 1981 (table 7). Landings then increased to 440 million pounds, valued at \$175 million, in 1983.

Cod, flounder, haddock, and pollock, the groundfish species of concern in this report accounted for 83 percent of the quantity and 92 percent of the value of U.S. Atlantic groundfish landings in 1983.

Table 7.--Groundfish and scallops: U.S. landings, by species, 1979-83

Species	1979	1980	1981	1982	1983 <sup>1/</sup>
Quantity (1,000 pounds)					
Groundfish:					
Atlantic:					
Cod-----	99,352	118,245	100,463	104,438	112,474
Flatfish <sup>2/</sup> -----	141,031	156,566	139,017	155,016	187,170
Haddock-----	41,882	55,188	55,324	44,835	32,563
Pollock-----	35,546	39,652	37,332	31,352	30,820
Total-----	317,811	369,651	332,136	335,641	363,027
Other <sup>3/</sup> -----	90,490	82,077	78,314	79,020	76,618
Total, Atlantic-----	408,301	451,728	410,450	414,661	439,645
Pacific:					
Cod-----	12,382	19,672	43,620	70,884	108,990
Flatfish-----	68,257	60,354	62,036	73,325	66,358
Other <sup>4/</sup> -----	161,630	154,778	171,261	204,684	172,178
Total, Pacific-----	242,269	234,804	276,917	348,893	347,526
Grand total-----	650,570	686,532	687,367	763,554	787,171
Scallops:					
Sea-----	31,466	28,752	30,277	21,325	20,478
Calico-----	863	-	14,641	11,010	9,606
Bay-----	1,774	968	670	1,780	2,338
Total-----	34,103	29,720	45,588	34,115	32,422
Value (1,000 pounds)					
Groundfish:					
Atlantic:					
Cod-----	28,632	31,883	33,081	37,385	37,928
Flatfish <sup>2/</sup> -----	65,910	67,052	69,113	83,200	98,015
Haddock-----	17,705	21,424	22,014	22,314	18,969
Pollock-----	6,657	7,172	8,536	7,019	5,386
Total-----	118,904	127,531	132,744	149,918	160,298
Other <sup>3/</sup> -----	16,372	15,234	17,061	17,670	14,704
Total, Atlantic-----	135,276	142,765	149,805	167,588	175,002
Pacific:					
Cod-----	2,639	6,069	9,696	18,721	18,451
Flatfish-----	16,835	15,436	16,779	18,829	18,425
Other <sup>4/</sup> -----	35,329	28,170	29,871	43,244	38,037
Total, Pacific-----	54,803	49,675	56,346	80,794	74,913
Grand total-----	190,079	192,440	206,151	248,382	249,915
Scallops:					
Sea-----	103,206	110,429	111,216	78,151	111,529
Calico-----	1,846	-	13,907	11,307	12,010
Bay-----	6,798	3,894	2,427	6,903	12,783
Total-----	111,850	114,323	127,550	96,361	136,322

<sup>1/</sup> Preliminary.

<sup>2/</sup> Includes Gulf landings, which are believed to be small.

<sup>3/</sup> Includes cusk, red hake, white hake, whiting, wolffish, and Atlantic Ocean perch, which are not a part of coverage of this study.

<sup>4/</sup> Includes Pacific hake, lingcod, rockfishes, sablefish, and Pacific Ocean perch.

Source: Compiled from official statistics of the U.S. Department of Commerce, National Marine Fisheries Service.

Northeastern U.S. landings of groundfish that are the subject of this report 1/ are shown in table 8. Such landings in 1983 totaled 351 million pounds, valued at \$153 million, compared with 295 million pounds, valued at \$109 million, in 1979, representing an increase of 19 percent by quantity and 41 percent by value.

Table 8.--Groundfish: Northeastern U.S. landings, by species, 1979-83

Species	1979	1980	1981	1982	1983 <u>1/</u>
Quantity (1,000 pounds)					
Flatfish-----	120,613	137,901	127,821	144,427	175,287
Cod-----	97,793	118,244	100,461	104,436	112,472
Haddock-----	41,882	55,188	55,323	44,835	32,563
Pollock-----	34,264	39,651	37,330	31,348	30,816
Total-----	294,552	350,984	320,935	325,046	351,138
Value (1,000 dollars)					
Flatfish-----	56,128	59,030	62,066	76,173	90,951
Cod-----	28,507	31,883	33,081	37,385	37,928
Haddock-----	17,705	21,424	22,014	22,314	18,969
Pollock-----	6,580	7,172	8,536	7,019	5,386
Total-----	108,920	119,509	125,697	142,891	153,234
Unit value (cents per pound)					
Flatfish-----	47	43	49	53	52
Cod-----	29	27	33	36	34
Haddock-----	42	39	40	50	58
Pollock-----	19	18	23	22	17
Average-----	37	34	39	44	44

1/ Preliminary.

Source: Compiled from official statistics of the U.S. Department of Commerce, National Marine Fisheries Service.

Flatfish was the principal species landed in the Northeastern United States during 1979-83. Total landings of flatfish in these States increased from 121 million pounds, valued at \$56 million, in 1979 to 175 million pounds, valued at \$91 million, in 1983. This represents an increase of 45 percent in quantity and 62 percent in value during the period. Massachusetts was the leading State, with such landings accounting for one-half of the quantity and

1/ Other groundfish species not covered that are of commercial importance include ocean perch, cusk, hake, whiting, wolffish, monkfish, and others.

value of the Northeastern U.S. total during 1979-83. Massachusetts flatfish landings increased irregularly from 59 million pounds, valued at \$28 million, in 1979 to 89 million pounds, valued at \$47 million, in 1983 (table 9). Rhode Island was the second leading State in the region, with flatfish landings increasing steadily from 21 million pounds, valued at \$10 million, in 1979 to 38 million pounds, valued at \$18 million, in 1983 (table 9). Such landings during 1979-83 represented 20 percent of the quantity and value of the Northeastern total. Maine followed Rhode Island in flatfish landings throughout the period, accounting for 14 percent of the quantity and 12 percent of the value of Northeastern U.S. landings (table 9). Other Northeastern States that recorded significant quantities of flatfish landings in 1983 include Virginia (8 million pounds), New York (6 million pounds), New Jersey (6 million pounds), Connecticut (3 million pounds), New Hampshire (2 million pounds), and Maryland (1 million pounds). A total of only 31,000 pounds of flatfish were reported landed in Delaware during 1979-83.

Total cod landings in the Northeastern United States increased from 98 million pounds, valued at \$29 million, in 1979 to 112 million pounds, valued at \$38 million, in 1983 (table 10). This represents an increase of 15 percent in quantity and 33 percent in value during 1979-83. However, such landings peaked in 1980 at 118 million pounds, valued at \$32 million. Massachusetts was, by far, the leading Northeastern State, accounting for 84 percent of the quantity and 85 percent of the value of total Northeastern U.S. landings during 1979-83. Cod landings in Massachusetts increased from 81 million pounds, valued at \$24 million, in 1979 to 93 million pounds, valued at \$31 million, in 1983 and peaked at 100 million pounds, valued at \$27 million, in 1980. Maine was the second leading Northeastern U.S. State, accounting for 10 percent of the quantity and 9 percent of the value of total Northeastern U.S. cod landings during 1979-83. Maine cod landings ranged from 9 million pounds, valued at \$3 million, in 1981 to 12 million pounds, valued at \$4 million, in 1983. Other Northeastern States that landed significant quantities of cod in 1983 were Rhode Island (5 million pounds), New Hampshire (2 million pounds), New York (683,000 pounds), Connecticut (120,000 pounds), and New Jersey (39,000 pounds). During 1979-83, a total of only 4,000 pounds of cod landings were reported in Maryland, 3,000 pounds, in Virginia, and none, in Delaware.

Virtually all haddock caught by U.S. fishermen are landed in the Northeastern United States. Haddock landings in this region increased from 42 million pounds, valued at \$18 million, in 1979 to 55 million pounds, valued at \$22 million, in 1981 before dropping to 33 million pounds, valued at \$19 million, in 1983 (table 11). This represents a decline of 22 percent in quantity but an increase of 7 percent in value during the period. Again, Massachusetts was, by far the principal State, with haddock landings accounting for 79 percent of the quantity and 78 percent of the value of the Northeastern U.S. total during 1979-83. Haddock landings in Massachusetts rose from 34 million pounds, valued at \$14 million, in 1979 to 45 million pounds, valued at \$18 million, in 1981 and then fell to 22 million pounds, valued at \$13 million, in 1983. Maine was the second leading State, accounting for 17 percent of the quantity and 18 percent of the value of the Northeastern U.S. landings during 1979-83. Maine haddock landings increased steadily from 6 million pounds, valued at \$3 million, in 1979 to 9 million pounds, valued at \$5 million, in 1983. Smaller quantities of haddock are landed in Rhode Island (598,000 pounds in 1983) and New Hampshire (545,000 pounds). Much smaller amounts of haddock are landed in the remaining Northeastern States. The general decline in haddock landings over the period

Table 9.— Flatfish: Northeastern U.S. landings, by States, 1979-83

State	1979	1980	1981	1982	1983 <sup>1/</sup>
Quantity (1,000 pounds)					
Massachusetts	58,889	70,971	69,830	65,549	89,401
Rhode Island	20,740	23,400	23,634	34,703	37,945
Maine	15,719	20,099	17,684	23,371	22,397
Virginia	10,208	8,635	3,877	4,364	8,337
New Jersey	6,643	5,229	5,057	5,271	5,647
New York	3,740	4,774	5,949	6,826	5,965
Connecticut	1,228	905	209	1,852	2,653
New Hampshire	1,728	2,559	1,134	2,127	1,993
Maryland	1,714	1,329	428	356	949
Delaware	4	0	19	8	0
Total	120,613	137,901	127,821	144,427	175,287
Value (1,000 dollars)					
Massachusetts	27,823	30,065	32,321	34,996	47,347
Rhode Island	9,754	9,705	12,233	18,779	18,107
Maine	6,176	7,444	7,953	10,118	11,268
Virginia	4,364	3,880	2,031	2,746	4,660
New Jersey	4,025	2,810	3,087	3,497	3,517
New York	1,984	2,426	3,596	4,007	3,257
Connecticut	475	300	89	911	1,259
New Hampshire	712	1,779	477	882	977
Maryland	814	621	273	231	559
Delaware	1	-	6	6	-
Total	56,128	59,030	62,066	76,173	90,951
Unit value (cents per pound)					
Massachusetts	47	42	46	53	53
Rhode Island	47	41	52	54	48
Maine	39	37	45	43	50
Virginia	43	45	52	63	56
New Jersey	61	54	61	66	62
New York	53	51	60	59	55
Connecticut	39	33	43	49	47
New Hampshire	41	70	42	41	49
Maryland	47	47	64	65	59
Delaware	25	-	32	75	-
Average	47	43	49	53	52

<sup>1/</sup> Preliminary.

Source: Compiled from official statistics of the U.S. Department of Commerce, National Marine Fisheries Service.

Table 10.- Cod: Northeastern U.S. landings, by States, 1979-83

State	1979	1980	1981	1982	1983 <u>1/</u>
Quantity (1,000 pounds)					
Massachusetts	81,196	99,996	86,038	87,034	92,800
Maine	10,366	11,402	9,297	11,944	12,081
Rhode Island	4,108	4,088	2,923	3,625	4,758
New Hampshire	1,522	2,234	1,749	1,250	1,991
New York	479	487	429	434	683
Connecticut	55	19	0	100	120
New Jersey	63	15	25	49	39
Maryland	4	0	0	0	0
Delaware	0	0	0	0	0
Virginia	0	3	0	0	0
Total	97,793	118,244	100,461	104,436	112,472
Value (1,000 dollars)					
Massachusetts	23,953	27,315	28,447	31,530	31,494
Maine	2,599	2,639	2,828	3,852	3,737
Rhode Island	1,279	1,144	1,035	1,269	1,592
New Hampshire	387	513	493	385	672
New York	244	257	268	299	376
Connecticut	15	6	-	35	42
New Jersey	29	9	10	15	15
Maryland	1	-	-	-	-
Delaware	-	-	-	-	-
Virginia	-	2/	-	-	-
Total	28,507	31,883	33,081	37,385	37,928
Unit value (cents per pound)					
Massachusetts	30	27	33	36	34
Maine	25	23	30	32	31
Rhode Island	31	28	35	35	33
New Hampshire	25	23	28	31	34
New York	51	52	62	69	55
Connecticut	27	32	-	35	35
New Jersey	46	60	40	31	38
Maryland	25	-	-	-	-
Delaware	-	-	-	-	-
Virginia	-	2/	-	-	-
Average	29	27	33	36	34

1/ Preliminary.2/ Not reported.

Source: Compiled from official statistics of the U.S. Department of Commerce, National Marine Fisheries Service.

Table 11.--Haddock: Northeastern U.S. landings, by States, 1979-83

State	1979	1980	1981	1982	1983 <u>1/</u>
Quantity (1,000 pounds)					
Massachusetts	33,539	44,726	45,311	34,645	22,403
Maine	6,248	7,110	7,115	8,809	9,000
New Hampshire	1,085	2,100	984	212	545
Rhode Island	934	1,110	1,803	1,134	598
Connecticut	3	0	0	20	15
New York	63	142	102	8	2
New Jersey	10	0	8	7	0
Delaware	0	0	0	0	0
Maryland	0	0	0	0	0
Virginia	0	0	0	0	0
Total	41,882	55,188	55,323	44,835	32,563
Value (1,000 dollars)					
Massachusetts	14,294	17,302	17,880	17,163	13,146
Maine	2,592	2,902	3,112	4,595	5,187
New Hampshire	450	816	449	123	333
Rhode Island	337	351	537	420	297
Connecticut	1	-	-	8	5
New York	29	53	34	4	1
New Jersey	2	-	2	1	-
Delaware	-	-	-	-	-
Maryland	-	-	-	-	-
Virginia	-	-	-	-	-
Total	17,705	21,424	22,014	22,314	18,969
Unit value (cents per pound)					
Massachusetts	43	39	39	50	59
Maine	41	41	44	52	58
New Hampshire	41	39	46	58	61
Rhode Island	36	32	30	37	50
Connecticut	33	-	-	40	33
New York	46	37	33	50	50
New Jersey	20	-	25	14	-
Delaware	-	-	-	-	-
Maryland	-	-	-	-	-
Virginia	-	-	-	-	-
Average	42	39	40	50	58

1/ Preliminary.

Source: Compiled from official statistics of the U.S. Department of Commerce, National Marine Fisheries Service.

resulted in increased unit values, generally a measure of ex-vessel prices (paid to the fishermen). The average unit value of Northeastern U.S. haddock landings increased from 42 cents per pound in 1979 to 58 cents per pound in 1983, or by 38 percent, but the total quantity landed decreased by 22 percent during the period.

Landings of pollock in the Northeastern States increased from 34 million pounds, valued at \$7 million, in 1979 to 40 million pounds, valued at \$7 million, in 1980 before declining to 31 million pounds, valued at \$5 million, in 1983 (table 12). Massachusetts was the principal State, accounting for 60 percent of the quantity and 64 percent of the value of Northeastern U.S. pollock landings during the period. Pollock landings in Massachusetts increased from 20 million pounds, valued at \$4 million, in 1979 to 24 million pounds, valued at \$5 million, in 1980 and then dropped to 18 million pounds, valued at \$3 million, in 1983. Maine was the second leading State, accounting for 35 percent of the quantity and 32 percent of the value of the Northeastern U.S. total during 1979-83. Maine pollock landings decreased from 13 million pounds, valued at \$2 million, in 1979 to 11 million pounds, valued at \$2 million, in 1983. Smaller quantities of pollock were landed in Rhode Island, Connecticut, New York, and New Jersey, and none was landed in Delaware, Maryland, and Virginia during the period.

Scallop landings in the Northeastern States declined steadily in quantity from 31 million pounds in 1979 to 22 million pounds in 1983 (table 13). The value, however, fluctuated from a high of \$122 million in 1983 to a low of \$79 million in 1982. Unit values ranged from a high of \$5.61 per pound in 1983 to a low of \$3.34 per pound in 1979. The decline in scallop landings is due in large part to the availability of scallop resources. <sup>1/</sup> The volatility of prices and the value of scallop landings are explained by availability of supplies, both domestic and imported, and by the demand for scallops, which is heavily influenced by economic conditions and disposable income.

Massachusetts is the leading State for Northeastern U.S. scallop landings. Massachusetts landings showed no discernable trend, with the quantity ranging from 15 million pounds in 1979 to 12 million pounds in 1980 and with the value ranging from \$48 million in 1980 to \$75 million in 1983 (table 13).

Massachusetts accounted for 55 percent of the quantity and 56 percent of the value of total Northeastern U.S. scallop landings during 1979-83. Virginia followed, with annual scallop landings declining annually from 8 million pounds, valued at \$24 million, in 1979 to 2 million pounds, valued at \$8 million, in 1982 before rising to 3 million pounds, valued at \$16 million, in 1983. Virginia accounted for 17 percent of the quantity and value of total Northeastern U.S. scallop landings during 1979-83. The decline in Virginia scallop landings was mainly the result of the depletion of resources off the Mid-Atlantic coast and the resulting shift of vessels to more productive scallop beds in other areas. New Jersey, which followed Virginia in scallop

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<sup>1/</sup> Scallop availability, particularly on the primary fishing grounds on Georges Bank, is cyclical, peaking about every 15 years and last peaking in 1977 and 1978 as a result of good scallop reproduction in 1972.

Table 12.--Pollock: Northeastern U.S. landings, by States, 1979-83

State	1979	1980	1981	1982	1983 <sup>1/</sup>
Quantity (1,000 pounds)					
Massachusetts	19,682	24,125	23,192	19,047	18,265
Maine	13,139	12,860	12,021	11,198	11,113
New Hampshire	1,274	2,400	1,969	962	1,301
Rhode Island	150	252	139	132	125
Connecticut	1	0	0	5	10
New York	18	12	9	0	2
New Jersey	0	2	0	4	0
Delaware	0	0	0	0	0
Maryland	0	0	0	0	0
Virginia	0	0	0	0	0
Total	34,264	39,651	37,330	31,348	30,816
Value (1,000 dollars)					
Massachusetts	4,013	4,659	5,540	4,451	3,473
Maine	2,305	2,096	2,585	2,353	1,725
New Hampshire	228	376	383	188	162
Rhode Island	28	38	26	25	23
Connecticut	1	-	-	1	2
New York	5	3	2	-	1
New Jersey	-	<u>2/</u>	-	1	-
Delaware	-	-	-	-	-
Maryland	-	-	-	-	-
Virginia	-	-	-	-	-
Total	6,580	7,172	8,536	7,019	5,386
Unit value (cents per pound)					
Massachusetts	20	19	24	23	19
Maine	18	16	22	21	16
New Hampshire	18	16	19	20	12
Rhode Island	19	15	19	19	18
Connecticut	100	-	-	20	20
New York	28	25	22	-	20
New Jersey	-	<u>2/</u>	-	25	-
Delaware	-	-	-	-	-
Maryland	-	-	-	-	-
Virginia	-	-	-	-	-
Average	19	18	23	22	17

<sup>1/</sup> Preliminary.<sup>2/</sup> Not reported.

Source: Compiled from official statistics of the U.S. Department of Commerce, National Marine Fisheries Service.

Table 13.--Scallops: Northeastern U.S. landings, by States, 1979-83

State	1979	1980	1981	1982	1983 <sup>1/</sup>
Quantity (1,000 pounds)					
Massachusetts	15,214	12,000	14,668	14,892	13,294
Virginia	7,593	6,033	3,304	2,194	2,906
New Jersey	5,233	3,492	2,186	1,193	2,424
Maine	1,163	3,223	3,734	1,733	1,975
Rhode Island	899	1,815	1,263	318	649
New York	882	1,082	628	1,085	462
New Hampshire	60	49	112	0	11
Maryland	83	107	46	32	9
Connecticut	198	98	0	50	0
Delaware	0	0	0	0	0
Total	31,325	27,899	25,941	21,497	21,730
Value (1,000 dollars)					
Massachusetts	52,308	48,244	60,030	53,819	74,669
Virginia	24,108	23,331	14,266	8,370	16,245
New Jersey	16,874	13,765	9,105	5,034	13,896
Maine	3,878	10,714	15,095	6,810	10,882
Rhode Island	3,344	6,892	4,669	1,075	3,515
New York	3,070	4,349	2,495	3,990	2,531
New Hampshire	196	200	425	-	69
Maryland	268	446	203	141	51
Connecticut	493	351	-	250	-
Delaware	-	-	-	-	-
Total	104,539	108,292	106,288	79,489	121,858
Unit value (dollars per pound)					
Massachusetts	3.44	4.02	4.09	3.61	5.62
Virginia	3.18	3.87	4.32	3.81	5.59
New Jersey	3.22	3.94	4.17	4.22	5.73
Maine	3.33	3.32	4.04	3.93	5.51
Rhode Island	3.72	3.80	3.70	3.38	5.42
New York	3.48	4.02	3.97	3.68	5.48
New Hampshire	3.27	4.08	3.79	-	6.27
Maryland	3.23	4.17	4.41	4.41	5.67
Connecticut	2.49	3.58	-	5.00	-
Delaware	-	-	-	-	-
Average	3.34	3.88	4.10	3.70	5.61

<sup>1/</sup> Preliminary.

Source: Compiled from official statistics of the U.S. Department of Commerce, National Marine Fisheries Service.

landings, also experienced declines in landings owing to similar circumstances. Such landings declined from 5 million pounds, valued at \$17 million, in 1979 to 1 million pounds, valued at \$5 million, in 1982 before rising to 2 million pounds, valued at \$14 million, in 1983. Scallop landings in New Jersey accounted for 11 percent of the quantity and value of the Northeastern U.S. total during the period. Scallop landings in Maine, the fourth leading State, also fluctuated, increasing from 1 million pounds, valued at \$4 million, in 1979 to 4 million pounds, valued at \$15 million, in 1981 before declining to 2 million pounds, valued at \$11 million, in 1983. Lesser amounts of scallops are landed in the remaining Northeastern States, with no landings reported in Delaware during 1979-83.

Landings of groundfish and scallops in the Northeastern United States are seasonal in nature. Such landings generally are higher in the summer months, when weather conditions permit vessels to fish more frequently, further from shore, and for longer periods. Also, migration patterns of certain species of fish, particularly cod, bring them closer to shore during the summer and, thus, they are more accessible to fishermen during this time of year.

Table 14 and figure 3 show monthly landings of groundfish and scallops in 1983 for New England States. <sup>1/</sup> Cod landings decreased from 12.1 million pounds in July to 6.7 million pounds in December, or by 45 percent between the high and low months. Flatfish landings decreased from 16.1 million pounds in May to 9.1 million pounds in February, or by 44 percent. Haddock landings decreased from 4.9 million pounds in June to 1.4 million pounds in December, or by 71 percent. Pollock landings decreased from 4.1 million pounds in June to 1.4 million pounds in April, or by 65 percent. Scallop landings decreased from 1.6 million pounds in June to 830,000 pounds in October, or by 49 percent. Scallop landings in 1983, however, showed a general monthly downward trend and were partially independent of seasonal fishing effort that year, the result of declining stocks.

The aggregate value of landings is less seasonally affected than the quantities, as lower quantities of landings result in higher prices, and vice versa. The value of New England cod landings in 1983 varied from \$3.6 million in August to \$2.5 million in December, or by 31 percent (compared with a decrease of 45 percent for the quantity). Flatfish landings decreased from \$7.8 million in March to \$5.4 million in December, or by 31 percent (compared with a decrease of 44 percent for the quantity). Haddock landings decreased from \$2.1 million in June to \$1.1 million in December, or by 46 percent (compared with a decrease of 71 percent for the quantity). Pollock landings decreased from \$531,000 in June to \$339,000 in September, or by 36 percent (compared with a decrease of 65 percent for the quantity). Scallop landings decreased from \$9.3 million in August to \$3.9 million in February, or by 58 percent (compared with a decrease of 49 percent for the quantity). The value of scallop landings showed a greater monthly variation than did the quantity owing to sharply rising prices between the low and high months in response to generally depressed scallop supplies.

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<sup>1/</sup> Maine, New Hampshire, Massachusetts, and Rhode Island. Data are not available for other States; however, the included States account for the bulk of Northeastern U.S. landings of the subject groundfish and scallops. <sup>29</sup>

Table 14.--Groundfish and scallops: Northeastern 1/ U.S. monthly landings, by species and by months, 1983 2/

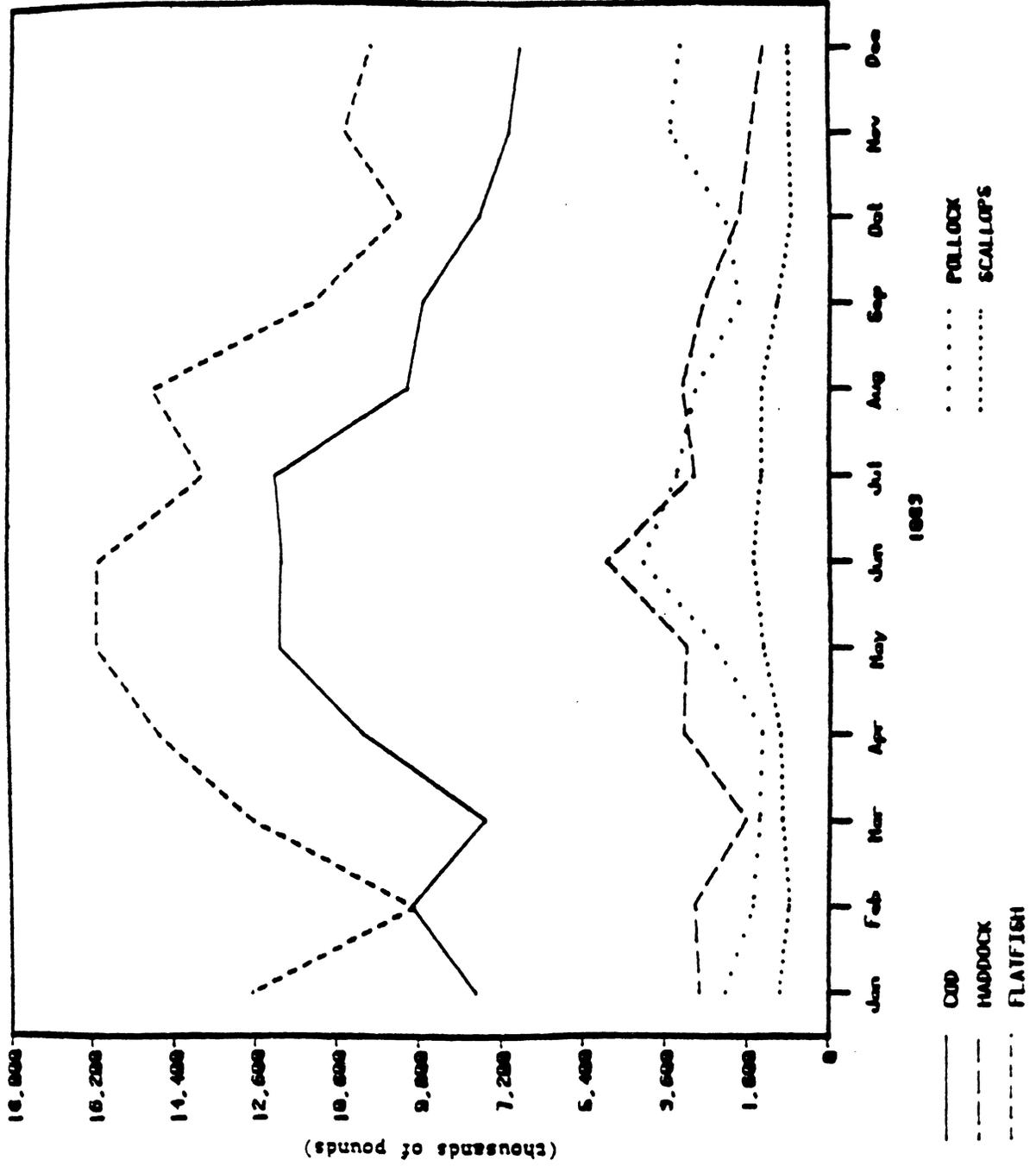
Species	January	February	March	April	May	June	July	August	September	October	November	December
	Quantity (1,000 pounds)											
Cod	7,759	9,122	7,515	10,215	12,043	11,966	12,131	9,190	8,850	7,634	6,961	6,706
Haddock	2,866	2,945	1,792	3,161	3,084	4,863	2,927	3,186	2,699	1,940	1,663	1,998
Flatfish	12,670	9,081	12,631	14,683	16,078	16,007	13,708	14,830	11,243	9,380	10,575	9,984
Pollock	2,301	1,645	1,500	1,442	2,447	4,070	3,293	2,881	1,937	2,278	3,437	3,288
Scallops	1,096	851	1,030	1,072	1,435	1,635	1,448	1,453	1,111	830	854	865
	Value (1,000 dollars)											
Cod	2,956	3,236	3,080	3,180	3,305	3,103	3,468	3,566	3,129	3,252	2,708	2,463
Haddock	1,547	1,558	1,271	1,596	1,892	2,052	1,823	1,833	1,582	1,362	1,334	1,104
Flatfish	6,170	6,458	7,821	6,410	5,823	5,671	6,664	7,463	6,528	6,217	6,659	5,366
Pollock	466	401	514	402	482	531	450	440	339	395	480	425
Scallops	5,004	3,863	4,649	5,086	7,075	9,151	8,821	9,258	7,206	5,755	5,527	5,407
	Unit value (per pound)											
Cod	\$0.38	\$0.35	\$0.41	\$0.31	\$0.27	\$0.26	\$0.29	\$0.39	\$0.35	\$0.43	\$0.39	\$0.37
Haddock	.54	.53	.71	.50	.61	.42	.62	.58	.59	.70	.80	.79
Flatfish	.49	.71	.62	.44	.36	.35	.49	.50	.58	.66	.63	.54
Pollock	.20	.24	.50	.28	.20	.13	.14	.15	.30	.48	.14	.13
Scallops	4.56	4.54	4.52	4.75	4.93	5.60	6.09	6.37	6.48	6.94	6.47	6.25

1/ Data are given for Maine, New Hampshire, Massachusetts, and Rhode Island.

2/ Preliminary.

Source: Compiled from unpublished data of the U.S. Department of Commerce, National Marine Fisheries Service.

Figure 3.--Monthly Northeastern U.S. groundfish and scallop landings, 1983.



Source: Compiled from official statistics of the U.S. Department of Commerce, National Marine Fisheries Service.

Groundfish and scallop landings fluctuate even greater on a daily basis. Figure 4 shows daily cod landings in New Bedford, Gloucester, and Boston (the three main ports for such landings) during January-June 1983. <sup>1/</sup> Daily cod landings at these ports decreased from 18,000 pounds to 602,000 pounds during the period. This variability results from a number of factors, including weather, the number of boats landing fish on a given day, individual vessel success on a fishing trip, and other random elements.

#### Financial experience of groundfish and scallop vessels

The Commission sent a questionnaire to 400 out of approximately 4,000 Northeastern U.S. vessel owners <sup>2/</sup> selected randomly and asked them to provide financial data on operations of each of their vessels separately for a period of 5 years from 1979 to 1983. Usable responses were divided between groundfish and scallops on the basis of at least 60 percent of total catch of the appropriate species by each vessel and further divided among four groups on the basis of the gross register tonnage (GRT) of each vessel as follows:

<u>Group</u>	<u>GRT range</u>
I-----	0 to 50
II-----	51 to 100
III-----	101 to 150
IV-----	151 and greater

For each group, there are different number of vessel data for each period as some of the vessels were placed in operation during 1979-83. Hence, the data are presented for each group by computing an average based on responses for each period.

#### Groundfish vessels.--

Group I (0 to 50 GRT).— The average GRT of vessels in this group was from 17 to 19 during 1979-83 (table 15). The average age of the vessels declined during 1979-83 from 28 years in 1979 to 22 years in 1981-83, and the length of time owned declined from 7 years in 1979 to 5 years in 1982 and 1983. The average number of days fished increased steadily from 95 in 1979 to 124 in 1983. The average crew size remained steady at 2 persons during 1979-83.

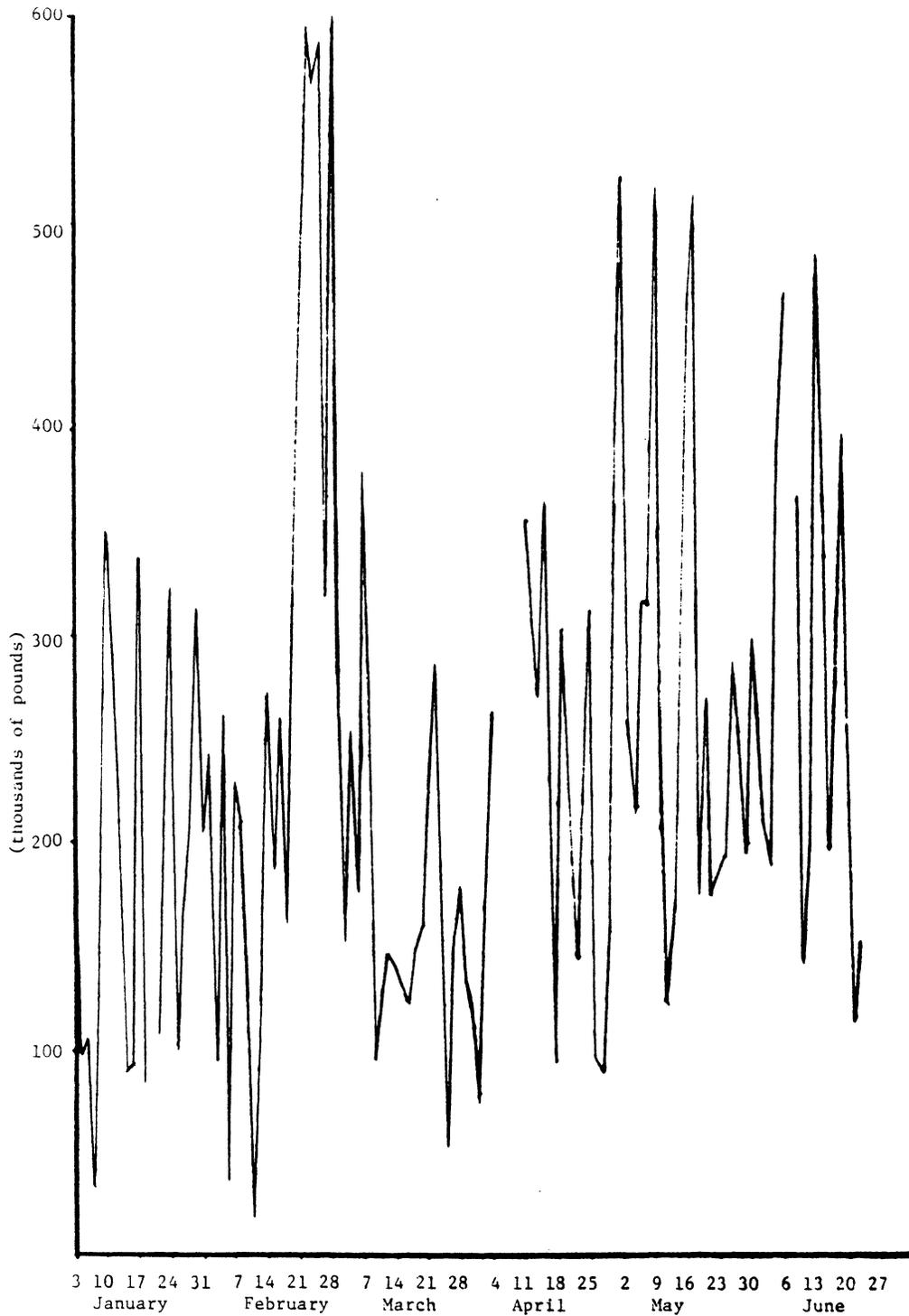
The average gross revenue (catch) peaked in 1981 at \$79,000 compared with \$52,000 in 1979 and \$55,000 in 1980. Gross revenue then dropped by 19 percent to \$64,000 in 1983. The average net income before income taxes rose from

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<sup>1/</sup> Data were not available for every day during the period.

<sup>2/</sup> The vessel owners were obtained from a listing maintained by the National Marine Fisheries Service. The sample was drawn from all vessels possessing a commercial license to fish for groundfish and/or scallops in the Northeastern U.S. region.

Figure 4.--Daily cod landings, Gloucester, New Bedford, and Boston, January-June 1983.



Source: Compiled from official statistics of the National Marine Fisheries Service.

Table 15.--Average income-and-loss experience of 11 to 21 Northeastern U.S. groundfish vessels, 0 to 50 gross register tons, accounting years 1979-83 <sup>1/</sup>

Item	1979	1980	1981	1982	1983
Gross revenue <sup>2/</sup>					
1,000 dollars---	52	55	79	65	64
Trip expenses-----do-----	13	15	17	16	16
Net revenue <sup>3/</sup> -----do-----	39	40	62	49	48
Expenses:					
Captains' and/or crew's shares					
1,000 dollars---	13	14	23	16	16
Gear, nets, and related supplies					
1,000 dollars---	4	4	7	6	5
Vessel repair and maintenance					
1,000 dollars---	5	3	7	5	6
Insurance-----do-----	2	2	1	2	2
Taxes and licenses-----do-----	1	1	1	1	1
Other -----do-----	2	2	4	5	5
Total-----do-----	27	26	43	35	35
Net income or (loss) before depreciation and salaries					
1,000 dollars---	12	14	19	14	13
Depreciation-----do-----	3	4	5	7	8
Net income or (loss) before salaries					
1,000 dollars---	9	10	14	7	5
Corporation officers' or partners' salaries					
1,000 dollars---	-	-	4/	4/	-
Net income or (loss) before income taxes					
1,000 dollars---	9	10	14	7	5
Ratio to gross revenue of--					
Net income or (loss) before income taxes-----percent---	17.3	18.2	17.7	10.8	7.8
Net income or (loss) before depreciation and salaries					
percent---	23.1	25.4	24.1	21.5	20.3
Net income or (loss) before salaries					
percent---	17.3	18.2	17.7	10.8	7.8
Trip expenses-----do-----	25.0	27.3	21.5	24.6	25.0
Captains' and/or crew's shares-----percent---	25.0	25.5	29.1	24.6	25.0
Gear, nets, and related supplies-----percent---	7.7	7.3	8.9	9.2	7.8
Vessel repair and maintenance-----percent---	9.6	5.5	8.9	7.7	9.4
Insurance-----do-----	3.8	3.6	1.3	3.1	3.1
Taxes and licenses-----do-----	1.9	1.8	1.3	1.5	1.6
Other expenses-----do-----	3.8	3.6	5.1	7.7	7.8
Total expenses <sup>5/</sup> -----do-----	51.9	47.3	54.4	53.8	54.7
Depreciation-----do-----	5.8	7.3	6.3	10.8	12.5
Corporation officers' or partners' salaries					
percent---	-	-	4/	4/	-
Share of firms reporting net losses-----percent---	27	25	20	33	29
Average gross register tonnage-----tons---	19	18	18	17	19
Average boat age-----years---	28	26	22	22	22
Average length of time owned-----years---	7	7	6	5	5
Average number of days fished-----	95	103	107	121	124
Average crew size-----number---	2	2	2	2	2

<sup>1/</sup> The number of respondents for each year is as follows: 1979--11; 1980--12; 1981--15; 1982--18; 1983--21.

<sup>2/</sup> Gross catch.

<sup>3/</sup> Adjusted gross catch.

<sup>4/</sup> Less than \$500.

<sup>5/</sup> Exclusive of trip expenses, depreciation, and salaries.

Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission.

\$9,000, or 17.3 percent of gross catch, in 1979 to \$14,000, or 17.7 percent of gross catch, in 1981. Such net income dropped sharply to \$7,000 in 1982 and to \$5,000 in 1983. Because most of the vessel owners operated as an individual proprietorship, the officers' or partners' salaries are very insignificant in this group.

The increase in pretax net income in 1981 was primarily due to the rise in gross revenue. Trip expenses (mainly fuel, ice, and groceries) and crew shares each averaged about 25.0 percent of gross revenue except in 1981, when the lower percentage of trip expenses were offset by the higher percentage of crew shares. The decline in pretax net income in 1982 and 1983 is attributed to the increase in depreciation and other expenses coupled with the lower gross revenue. As a percentage of gross revenue, depreciation expense increased irregularly from 6 percent in 1979 to 12 percent in 1983, and other expenses increased from 4 to 8 percent during the same period. Gear, nets and other related supplies averaged from 7 to 9 percent, and vessel repair and maintenance expenses ranged from 6 to 10 percent during 1979-83. The net income before depreciation and officers' salaries ranged from a high of 25 percent of gross revenue in 1980 to a low of 20 percent of gross revenue in 1983.

The share of responding firms reporting net losses was at its lowest point, 20 percent, in 1981 and was at its highest point, 33 percent, in 1982.

Group II (51 to 100 GRT).--The average GRT of vessels in this group ranged from 74 to 90 during 1979-83 (table 16). Vessel age averaged from 12 to 18 years, and the length of ownership by respondents averaged from 5 to 16 years. The vessels in this group annually fished an average of from 167 to 240 days during the period, with an average crew size of from 4 to 6 persons. The average gross revenue declined from \$332,000 in 1979 to \$189,000 in 1982 before rising to \$229,000 in 1983.

The average net income before income taxes declined from \$31,000, or 9 percent of gross revenue, in 1979 to a loss of \$4,000, or 2 percent of gross revenue, in 1983. Losses were greatest at \$13,000, or 7 percent of gross revenue, in 1982. Almost all of the vessels operated as corporations during the period, with corporation officers' or partners' salaries ranging from 0 percent of gross catch in 1979 to 1.4 percent of gross catch in 1981.

The decrease in average net income before income taxes during the period may be attributed mainly to declining gross revenue. Although average annual trip expenses remained relatively constant at \$52,000 to \$56,000 during the period, they increased as a share of gross revenue from 17 percent in 1979 to 28 percent in 1982 before declining to 23 percent in 1983. The percentage increase in trip expenses was somewhat offset by a decline in captains' and crews' shares from 50 percent of gross revenue in 1979 to 34 percent in 1983. Annual increases during 1979-83 were registered in most expense items other than captains' and crews' shares, particularly other expenses (which rose from 4 percent of gross catch in 1979 to 15 percent in 1983). However, the decline in captains' and crews' shares as an expense item caused total expenses (excluding trip expenses, depreciation, and salaries) to decline from 72 percent of gross revenue in 1979 to 68 percent in 1983. Depreciation also

Table 16.--Average income-and-loss experience of 2 to 9 Northeastern  
U.S. groundfish vessels, 51 to 100 gross register tons, accounting years  
1979-83 <sup>1/</sup>

Item	1979	1980	1981	1982	1983
Gross revenue <sup>2/</sup>					
1,000 dollars---	332	231	213	189	229
Trip expenses-----do-----	55	56	52	53	53
Net revenue <sup>3/</sup> -----do-----	277	175	161	136	176
Expenses:					
Captains's and/or crew's shares					
1,000 dollars---	167	100	94	69	77
Gear, nets, and related supplies					
1,000 dollars---	8	15	9	10	11
Vessel repair and maintenance					
1,000 dollars---	21	7	14	13	16
Insurance-----do-----	13	11	9	11	14
Taxes and licenses-----do-----	16	11	11	9	5
Other-----do-----	12	11	16	19	34
Total-----do-----	237	155	153	131	156
Net income or (loss) before depreciation and salaries					
1,000 dollars---	40	20	8	5	20
Depreciation-----do-----	9	11	16	17	21
Net income or (loss) before salaries					
1,000 dollars---	31	9	(8)	(12)	(1)
Corporation officer's or partners' salaries					
1,000 dollars---	-	1	3	1	3
Net income or (loss) before income taxes					
1,000 dollars---	31	8	(11)	(13)	(4)
Ratio to gross revenue of--					
Net income or (loss) before income taxes					
percent---	9.3	3.5	(5.2)	(6.9)	(1.7)
Net income or (loss) before depreciation and salaries					
percent---	12.0	8.7	3.8	2.6	8.7
Net income or (loss) before salaries					
percent---	9.3	3.9	(3.8)	(6.3)	(0.4)
Trip expenses-----do-----	16.6	24.2	24.4	28.0	23.1
Captains's and/or crew's shares-----percent---	50.3	43.2	44.1	36.5	33.6
Gear, nets, and related supplies-----percent---	2.4	6.5	4.2	5.3	4.8
Vessel repair and main- tenance-----percent---	6.3	3.0	6.6	6.9	7.0
Insurance-----do-----	3.9	4.8	4.2	5.8	5.7
Taxes and licenses-----do-----	4.8	4.8	5.2	4.8	2.2
Other expenses-----do-----	3.6	4.8	7.5	10.1	14.8
Total expenses <sup>4/</sup> -----do-----	71.4	67.1	71.8	69.3	68.1
Depreciation-----do-----	2.7	4.8	7.5	9.0	9.2
Corporation officers' or partners' salaries					
percent---	-	0.4	1.4	0.5	1.3
Share of firms reporting net losses-----percent---	-	33	75	80	44
Average gross register tonnage-----tons---	90	84	76	74	74
Average boat age-----years---	18	13	12	18	13
Average length of time owned-----years---	16	12	10	8	5
Average number of days fished-----do-----	240	179	198	180	167
Average crew size----number---	6	6	5	5	4

<sup>1/</sup> The number of respondents for each year is as follows: 1979--2; 1980--3; 1981--4; 1982--5; 1983--9.

<sup>2/</sup> Gross catch.

<sup>3/</sup> Adjusted gross catch.

<sup>4/</sup> Exclusive of trip expenses, depreciation, and salaries.

Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission.

contributes to the decline in net income before income taxes. Depreciation rose steadily from \$9,000, or 3 percent of gross revenue, in 1979 to \$21,000, or 9 percent of gross revenue, in 1983. The average net income before depreciation and officers' salaries declined from \$40,000 in 1979 to \$5,000 in 1982 and then rose to \$20,000 in 1983, tracking the trend in gross revenue.

The share of respondents reporting net losses increased from 0 in 1979 to 80 percent in 1982 before falling to 44 percent in 1983.

Group III (101 to 150 GRT).--Vessels in this group averaged from 127 to 131 GRT per year during 1979-83 (table 17). The annual average vessel age ranged from 10 to 13 years, and the annual average length of ownership ranged from 4 to 7 years during the period. The number of days fished each year averaged from 153 to 214, and the average crew size remained at 6 during 1979-83. The average gross revenue per year increased irregularly from \$256,000 in 1979 to \$355,000 in 1983, peaking at \$393,000 in 1981.

The average net income before income taxes ranged from a loss of \$5,000, or 1.3 percent of gross revenue, in 1981 to a loss of \$17,000, or 6.6 percent of gross revenue, in 1979. Losses were recorded each year during 1979-83 in this category. Almost all of the vessels operated as corporations during the period, with no corporation officers' or partners' salaries being paid until 1983, when an average of \$2,000, or 0.6 percent of gross revenue, was registered.

The annual average losses before income taxes during 1979-83 is attributed mainly to depreciation. The average depreciation increased from \$19,000 in 1979 to \$35,000 in 1983 and remained steady at from \$29,000 to \$30,000 during 1980-82. Depreciation as a share of gross revenue increased from 7 percent in 1979 to 10 percent in 1983. Trip expenses (fuel, ice, and groceries) also increased, from 20 percent of gross revenue in 1979 to 28 percent in 1982 before falling to 24 percent in 1983. However, total expenses declined from 80 percent of gross revenue in 1979 to 68 percent in 1983, mainly the result of declining captains' and crews' shares relative to gross revenue. The average net income before depreciation increased from \$2,000, or 1 percent of gross revenue, in 1979 to \$26,000 in 1983, or 7 percent, in 1983, following the trend in gross revenue.

The share of respondents reporting net losses ranged from 75 percent in 1979, 1981, and 1983 to 100 percent in 1980.

Group IV (151 and greater GRT).--The average GRT of vessels in this group remained relatively constant at 179 to 180 tons during 1979-83 (table 18). Vessel age and length of time owned by respondents averaged from 6 to 8 years during the period. Vessels in this group during 1979-83 fished an average of from 188 days in 1980 to 207 days in 1983, with an average crew size of from 6 to 7. Average gross revenue ranged from \$529,000 in 1980 to \$679,000 in 1982.

The average net income before income taxes declined irregularly from \$15,000 in 1979, or 2.7 percent of gross revenue, to zero in 1983. Losses were registered in 1980 (\$4,000) and 1982 (\$3,000). All vessels in this group

Table 17.---Average income-and-loss experience of 4 to 8 Northeastern  
U.S. g. fish vessels, 101 to 150 gross register tons, accounting years  
1979-83 <sup>1/</sup>

Item	1979	1980	1981	1982	1983
Gross revenue <sup>2/</sup>					
1,000 dollars--	256	332	393	315	355
Trip expenses-----do-----	50	83	103	88	86
Net revenue <sup>3/</sup> -----do-----	206	249	290	227	269
Expenses:					
Captains' and/or crew's shares					
1,000 dollars--	136	158	178	138	146
Gear, nets, and related supplies					
1,000 dollars--	14	17	18	13	18
Vessel repair and maintenance					
1,000 dollars--	14	17	22	23	24
Insurance-----do-----	12	17	19	17	22
Taxes and licenses--do-----	11	12	13	6	5
Other expenses-----do-----	17	15	16	14	28
Total-----do-----	204	236	266	211	243
Net income or (loss) before depreciation and salaries					
1,000 dollars--	2	13	24	16	26
Depreciation-----do-----	19	30	29	29	35
Net income or (loss) before salaries					
1,000 dollars--	(17)	(17)	(5)	(13)	(9)
Corporation officers' or partners' salaries-----do-----	-	-	-	-	2
Net income or (loss) before income taxes-----do-----	(17)	(17)	(5)	(13)	(11)
Ratio to gross revenue of--					
Net income or (loss) before income taxes					
percent--	(6.6)	(5.1)	(1.3)	(4.1)	(3.1)
Net income or (loss) before depreciation and salaries					
percent--	0.8	3.9	6.1	5.1	7.3
Net income or (loss) before salaries-----percent--	(6.6)	(5.1)	(1.3)	(4.1)	(2.5)
Trip expenses-----do-----	19.5	25.0	26.2	27.9	24.2
Captains' and/or crew's shares-----percent--	53.1	47.6	45.3	43.8	41.1
Gear, nets, and related supplies-----percent--	5.5	5.1	4.6	4.1	5.1
Vessel repair and main- tenance-----percent--	5.5	5.1	5.6	7.3	6.8
Insurance-----do-----	4.7	5.1	4.8	5.4	6.2
Taxes and licenses--do-----	4.3	3.6	3.3	1.9	1.4
Other expenses-----do-----	6.6	4.5	4.1	4.4	7.9
Total expenses <sup>4/</sup> -----percent--	79.7	71.1	67.7	67.0	68.5
Depreciation-----do-----	7.4	9.0	7.4	9.2	9.9
Corporation officers' or partners' salaries					
percent--	-	-	-	-	0.6
Share of firms reporting net losses-----do-----	75	100	75	83	75
Average gross register tonnage-----tons--	131	131	131	128	127
Average boat age-----years--	13	13	13	12	10
Average length of time owned-----years--	7	7	7	5	4
Average number of days fished-----	153	212	214	182	204
Average crew size----number--	6	6	6	6	6

<sup>1/</sup> The number of respondents for each year is as follows: 1979-81--4;  
1982--6; 1983--8.

<sup>2/</sup> Gross catch.

<sup>3/</sup> Adjusted gross catch.

<sup>4/</sup> Excluding trip expenses, depreciation, and salaries.

Source: Compiled from data submitted in response to questionnaires of the  
U.S. International Trade Commission.

Table 18.--Average income-and-loss experience of 7 to 11 Northeastern  
U.S. groundfish vessels, 151 and greater gross register tons, accounting  
years 1979-83 1/

Item	1979	1980	1981	1982	1983
Gross revenue <u>2/</u>					
1,000 dollars--	566	529	632	679	614
Trip expenses-----do-----	121	142	171	185	168
Net revenue <u>3/</u> -----do-----	445	387	461	494	446
Expenses:					
Captains' and/or crew's shares					
1,000 dollars--	243	211	233	249	233
Gear, nets, and related supplies					
1,000 dollars--	29	20	19	34	34
Vessel repair and maintenance					
1,000 dollars--	26	20	30	36	32
Insurance-----do-----	26	28	31	30	37
Taxes and licenses--do-----	20	15	18	15	14
Other expenses-----do-----	40	49	65	61	59
Total-----do-----	384	343	396	425	409
Net income or (loss) before depreciation and salaries					
1,000 dollars--	61	44	65	69	37
Depreciation-----do-----	29	40	49	52	52
Net income or (loss) before salaries					
1,000 dollars--	32	4	16	17	15
Corporation officers' or partners' salaries					
1,000 dollars--	17	8	14	20	15
Net income or (loss) before income taxes					
1,000 dollars--	15	(4)	2	(3)	-
Ratio to gross revenue of--					
Net income or (loss) before income taxes--percent--	2.7	(0.8)	.3	(0.4)	-
Net income or (loss) before depreciation and salaries					
percent--	10.8	8.3	10.3	10.1	6.0
Net income or loss before salaries-----percent--	5.7	.8	2.5	2.5	2.4
Trip expenses-----do-----	21.4	26.8	27.1	27.2	27.4
Captains' and/or crew's shares-----percent--	42.9	39.9	36.9	36.7	37.9
Gear, nets, and related supplies-----percent--	5.1	3.8	3.0	5.0	5.5
Vessel repair and main- tenance-----percent--	4.6	3.8	4.7	5.3	5.2
Insurance-----do-----	4.6	5.3	4.9	4.4	6.0
Taxes and licenses--do-----	3.5	2.8	2.8	2.2	2.3
Other expenses-----do-----	7.1	9.3	10.3	9.0	9.6
Total expenses <u>4/</u> -----do-----	67.8	64.8	62.3	62.6	66.6
Depreciation-----do-----	5.1	7.6	7.8	7.7	8.5
Corporation officers' or partners' salaries					
percent--	3.0	1.5	2.2	2.9	2.4
Share of firms reporting net losses-----percent--	29	50	40	36	73
Average gross register tonnage-----tons--	180	179	179	180	180
Average boat age-----years--	8	7	7	6	6
Average length of time owned-----years--	8	7	7	6	6
Average number of days fished-----	201	188	193	193	207
Average crew size-----number--	6	7	7	7	7

1/ The number of respondents for each year is as follows: 1979--7;  
1980-81--10; 1982-83--11.

2/ Gross catch.

3/ Adjusted gross catch.

4/ Excluding trip expenses, depreciation, and salaries.

Source: Compiled from data submitted in response to questionnaires of the  
U.S. International Trade Commission.

operated as corporations during 1979-83, with average corporate officers' salaries ranging from \$8,000 in 1980 (1.5 percent of gross revenue) to \$20,000 in 1982 (2.9 percent).

Depreciation and corporate officers' salaries appear to be the principal items contributing to the decline in net income before income taxes during the period under review. Average net income before depreciation and officers' salaries increased from \$61,000 (11 percent of gross revenue) in 1979 to \$69,000 (10 percent) in 1982 before declining to \$37,000 (6 percent) in 1983. Average depreciation increased from \$29,000 (5 percent of gross revenue) in 1979 to \$52,000 (8 percent) in 1983. Average net income before officers' salaries ranged from \$4,000 (1 percent of gross revenue) in 1980 to \$32,000 (6 percent) in 1979 and remained relatively constant at \$15,000 to \$17,000 (2.4 to 2.5 percent) during the remainder of the period.

Average trip expenses (fuel, ice, and groceries) per year increased from \$121,000 in 1979 to \$185,000 in 1982 but then declined to \$168,000 in 1983. Such expenses remained relatively stable as a share of gross revenue, ranging from 21 percent in 1979 to 27 percent in 1983. Average total expenses (excluding trip expenses, depreciation, and salaries) also increased absolutely, from \$384,000 in 1979 to \$425,000 in 1982, but declined to \$409,000 in 1983. Total expenses as a share of gross revenue remained quite steady, ranging from 62 percent in 1981 to 68 percent in 1979.

The share of respondents reporting net losses ranged from 29 percent in 1979 to 73 percent in 1983.

#### Scallop vessels. - -

Group I (0 to 50 GRT) and II (51 to 100 GRT). - - Insufficient data were obtained from vessels in these groups to analyze financial experience.

Group III (101 to 150 GRT). - The average vessel GRT in this group ranged from 121 to 124 tons per year during 1979-83 (table 19). During 1979-83, average vessel age ranged from 16 to 18 years and the average length of ownership by respondents was from 15 to 18 years. During the period, the average number of days fished ranged from 189 in 1979 to 214 in 1983, with an average crew size of from 9 (1980-83) to 10 (1979) persons.

The average net income before income taxes declined from \$70,000 (9.1 percent of gross revenue) in 1979 to a loss of \$3,000 (0.7 percent) in 1982 and then rose to \$40,000 (6.3 percent) in 1983. Most of the vessels operated as corporations during the period under review.

The trend in average net income before income taxes resulted primarily from a decline in average gross revenue coupled with relatively increasing average trip expenses. Average gross revenue declined from \$767,000 in 1979 to \$436,000 in 1982. During this period, the ratio of average trip expenses to gross revenue increased from 14 percent in 1979 to 23 percent in 1982. In 1983, the average gross revenue increased to \$630,000, and average trip expenses declined to 18 percent of gross revenue. Average total expenses (excluding trip expenses, depreciation, and salaries) remained relatively stable during the period, ranging from 70 percent of gross revenue in 1982 to 72 percent in 1981. Average captains' and crews' shares trended along with

Table 19.--Average income-and-loss experience of 4 to 5 Northeastern U.S. scallop vessels, 101 to 150 gross register tons, accounting years 1979-83 <sup>1/</sup>

Item	1979	1980	1981	1982	1983
Gross revenue <sup>2/</sup>					
1,000 dollars--	767	598	560	436	630
Trip expenses-----do-----	108	92	112	100	111
Net revenue <sup>3/</sup> -----do-----	659	506	448	336	519
Expenses:					
Captains' and/or crew's shares					
1,000 dollars--	398	274	246	165	272
Gear, nets, and related supplies					
1,000 dollars--	48	38	42	40	52
Vessel repair and maintenance					
1,000 dollars--	33	49	32	38	54
Insurance-----do-----	25	26	25	19	26
Taxes and licenses-----do-----	19	14	17	11	11
Other expenses-----do-----	24	32	36	33	31
Total-----do-----	547	433	398	306	446
Net income or (loss) before depreciation and salaries					
1,000 dollars--	112	73	50	30	73
Depreciation-----do-----	26	26	26	28	26
Net income or (loss) before salaries					
1,000 dollars--	86	47	24	2	47
Corporation officers' or partners' salaries					
1,000 dollars--	16	8	5	5	7
Net income or (loss) before income taxes					
1,000 dollars--	70	39	19	(3)	40
Ratio to gross revenue of--					
Net income or (loss) before income taxes					
percent--	9.1	6.5	3.4	(0.7)	6.3
Net income or (loss) before depreciation and salaries					
percent--	14.6	12.2	8.9	6.9	11.6
Net income or (loss) before salaries--percent--	11.2	7.9	4.3	0.5	7.5
Trip expenses-----do-----	14.1	15.4	20.0	22.9	17.6
Captains' and/or crew's shares-----percent--	51.9	45.8	43.9	37.8	43.2
Gear, nets, and related supplies-----percent--	6.3	6.4	7.5	9.2	8.3
Vessel repair and maintenance-----percent--	4.3	8.2	5.7	8.7	8.6
Insurance-----do-----	3.3	4.3	4.5	4.4	4.1
Taxes and licenses-----do-----	2.5	2.3	3.0	2.5	1.7
Other expenses-----do-----	3.1	5.4	6.4	7.6	4.9
Total expenses <sup>4/</sup> -----do-----	71.3	72.4	71.1	70.2	70.8
Depreciation-----do-----	3.3	4.3	4.6	6.4	4.1
Corporation officers' or partners' salaries					
percent--	2.1	1.3	.9	1.1	1.1
Share of firms reporting net losses-----percent--	-	40	60	60	-
Average gross register tonnage-----tons--	121	124	124	124	124
Average boat age-----years--	18	16	16	16	16
Average length of time owned-----years--	18	15	15	15	15
Average number of days fished-----	189	212	197	190	214
Average crew size-----number--	10	9	9	9	9

<sup>1/</sup> The number of respondents for each year is as follows: 1979--4; 1980-83--5.

<sup>2/</sup> Gross catch.

<sup>3/</sup> Adjusted gross catch.

<sup>4/</sup> Excluding trip expenses, depreciation, and salaries.

Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission.

average net income before taxes, declining from 52 percent of gross revenue in 1979 to 38 percent in 1982 before rising to 43 percent in 1983. Average net income before depreciation and salaries decreased from \$112,000 (15 percent of gross revenue) in 1979 to \$30,000 (7 percent) in 1982 before rising to \$73,000 (12 percent) in 1983, following the trend in gross revenue.

The share of respondents reporting net losses ranged from zero in 1979 and 1983 to 60 percent in 1981 and 1982.

Group IV (151 and greater GRT).—The average GRT of vessels in this group ranged from 171 tons to 179 tons during 1979–83 (table 20). During the period, the average vessel age ranged from 7 to 9 years, and the annual average length of ownership by respondents ranged from 4 to 6 years. The average number of days fished ranged from 181 to 208 per year, and the average crew size ranged from 8 to 11 per year.

The average net income before income taxes declined from \$45,000 (7 percent of gross revenue) in 1979 to a loss of \$1,000 (0.2 percent) in 1982 before rising to \$46,000 (7 percent) in 1983. Most of the vessels operated as corporations during the period.

The decline in average net income resulted primarily from decreasing average gross revenue combined with increasing average trip expenses. Average gross revenue declined from \$663,000 in 1979 to \$517,000 in 1981. During this period, average trip expenses increased from 15 percent of gross revenue in 1979 to 26 percent in 1981. Average gross catch then increased to \$561,000 in 1982 and to \$681,000 in 1983 as average trip expenses increased slightly to 27 percent of gross revenue in 1982 before declining to 22 percent in 1983. Average total expenses (excluding trip expenses, depreciation, and salaries) declined irregularly during the period, from 71 percent of gross revenue in 1979 to 63 percent in 1983, remaining relatively stable during 1981–83. Average corporation officers' and partners' salaries contributed somewhat to the trend in net income before income taxes—increasing from zero in 1979 to \$10,000 (2 percent of gross revenue) in 1981 before falling to \$5,000 (1 percent) in 1983. Depreciation remained relatively constant in absolute terms during 1979–83—averaging \$51,000 to \$55,000 during 1979–83. Such depreciation increased from 8 percent of gross revenue in 1979 to 10 percent in 1981 before falling to 8 percent in 1983. The average net income (before depreciation and salaries) decreased from \$97,000 in 1979 to \$58,000 in 1982 before rising to \$102,000 in 1983.

The share of respondents reporting net losses ranged from 25 percent in 1979 and 1983 to 44 percent in 1981.

### Costs

The following discussion on vessel costs will focus on data obtained from a model of the New England harvesting sector created and maintained by the National Marine Fisheries Service in Gloucester, MA. This model is updated annually with new data to account for changes in vessel operations, union contract and lay provisions, cost items, and so forth, and is considered by the National Marine Fisheries Service to generate accurate descriptions of the cost and revenue situation of the New England fleet.

Table 20.--Average income-and-loss experience of 4 to 12 U.S. scallop vessels, 151 and greater gross register tons, accounting years 1979-83 <sup>1/</sup>

Item	1979	1980	1981	1982	1983
Gross revenue <sup>2/</sup>					
1,000 dollars--	663	631	517	561	681
Trip expenses-----do----	97	140	135	150	153
Net revenue <sup>3/</sup> -----do----	566	491	382	411	528
Expenses:					
Captains' and/or crew's shares					
1,000 dollars--	305	255	186	202	276
Gear, nets, and related supplies					
1,000 dollars--	33	34	21	27	38
Vessel repair and maintenance					
1,000 dollars--	42	38	37	36	36
Insurance-----do----	24	28	25	34	33
Taxes and licenses--do----	8	10	10	13	7
Other expenses-----do----	57	46	41	41	36
Total-----do----	469	411	320	353	426
Net income or (loss) before depreciation and salaries					
1,000 dollars--	97	80	62	58	102
Depreciation-----do----	52	55	51	52	51
Net income or (loss) before salaries					
1,000 dollars--	45	25	11	6	51
Corporation officers or partners' salaries					
1,000 dollars--	-	4	10	7	5
Net income or (loss) before income taxes					
1,000 dollars--	45	21	1	(1)	46
Ratio to gross revenue of--					
Net income or (loss) before income taxes					
percent--	6.8	3.3	0.2	(0.2)	6.8
Net income or (loss) before depreciation and salaries					
percent--	14.6	12.7	12.0	10.3	15.0
Net income or (loss) before salaries--percent--	6.8	4.0	2.1	1.1	7.5
Trip expenses-----do----	14.6	22.2	26.1	26.7	22.5
Captains' and/or crew's shares-----percent--	46.0	40.4	36.0	36.0	40.5
Gear, nets, and related supplies-----percent--	5.0	5.4	4.1	4.8	5.6
Vessel repair and maintenance-----percent--	6.3	6.0	7.2	6.4	5.3
Insurance-----do----	3.6	4.4	4.8	6.1	4.8
Taxes and licenses--do----	1.2	1.6	1.9	2.3	1.0
Other expenses-----do----	8.6	7.3	7.9	7.3	5.3
Total expenses <sup>4/</sup> -----percent--	70.7	65.1	61.9	62.9	62.6
Depreciation-----do----	7.8	8.7	9.9	9.3	7.5
Corporation officers' or partners' salaries					
percent--	-	.6	1.9	1.2	.7
Share of firms reporting net losses-----percent--	25	38	44	40	25
Average gross register tonnage-----tons--	171	179	176	176	178
Average boat age-----years--	9	7	7	8	8
Average length of time owned-----years--	6	6	5	5	4
Average number of days fished-----	185	195	181	187	208
Average crew size-----number--	11	11	11	9	8

<sup>1/</sup> The number of respondents for each year is as follows: 1979--4; 1980--8; 1981--9; 1982--10; 1983--12.

<sup>2/</sup> Gross catch.

<sup>3/</sup> Adjusted gross catch.

<sup>4/</sup> Excluding trip expenses, depreciation, and salaries.

Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission.

The vessels surveyed include two vessel types that target the subject groundfish, a 45-foot dragger and a 60-foot dragger, and one scallop vessel, a 111-foot scallop dragger. The data cover 1979-83 (1979-82 for the scallop dragger). Principal vessel expenses for these operations are presented in tables 21 and 22 and are expressed on the bases of share of gross sales and per unit of output.

Labor compensation is generally the largest expense incurred by groundfish vessels, followed by fuel, interest, maintenance and repair, and insurance. Labor costs are typically a function of the gross stock (the value of the catch). The lay system (the method by which the stock is divided among the crew and the boat owner) determines, first, the expenses of the enterprise that are paid by either the crew or owner, and, second, in what proportion the remainder is split up. As an example, a common lay system for New England groundfish vessels is for the boat owner to take 40 percent of the gross stock, and the crew, 60 percent, with the crew paying for food, water, and fuel. In both New England and Atlantic Canada, it is common for a variety of lay systems to be in use within ports as well as between ports.

For 45-foot groundfish draggers, labor costs averaged 24 percent of gross revenues during 1979-83; fuel, 29 percent; interest, 12 percent; maintenance and repair, 12 percent; and insurance, 6 percent (table 21). For 60-foot draggers, labor was 37 percent of gross revenues during 1979-1983; fuel, 16 percent; interest, 3 percent; maintenance and repair, 15 percent; and insurance, 4 percent.

Costs on a per-unit-of-output basis during 1979-83 were as follows: labor, \$0.094 per pound for 45-foot vessels and \$0.106 for 60-foot vessels; fuel, \$0.095 for 45-foot vessels and \$0.047 for 60-foot vessels; interest, \$0.047 for 45-foot vessels and \$0.01 for 60-foot vessels; maintenance, \$0.044 for both 45-foot vessels and 60-foot vessels; and insurance, \$0.022 for 45-foot vessels and \$0.011 for 60-foot vessels.

The principal costs of a scalloper operation in the Northeastern region are labor (an average of 39 percent of gross revenues during 1979-82), fuel (17 percent), maintenance and repairs (10 percent), and insurance (4 percent) (table 22).

For the typical scalloper in the 111-foot size class, labor costs (net crew share) declined from 50 percent of gross revenues in 1979 to 30 percent in 1982. Labor costs per pound of scallops harvested ranged from \$1.47 in 1979 to \$1.11 in 1982 and averaged \$1.35 during 1979-82.

Fuel costs steadily increased from 8 percent in 1979 to 24 percent in 1982, averaging 17 percent of the scallop vessels' gross revenues during 1979-82. On a per pound basis, fuel costs increased from \$0.23 in 1979 to \$0.88 in 1982.

Maintenance and repair costs for scallop vessels declined from 9.8 percent of gross revenues in 1979 to 9.3 percent in 1981 and then rose to 10.0 percent in 1982. Maintenance and repair costs on a per pound basis averaged \$0.34 during the period, rising steadily from \$0.29 in 1979 to \$0.37 in 1982.

Insurance costs for scallop vessels rose from 2 percent of gross revenues in 1979 to 5 percent in 1982. On a per pound basis, insurance costs averaged \$0.13 during the period, rising from \$0.08 in 1979 to \$0.19 in 1982.

Table 21.-- Selected costs of Northeastern U.S. groundfish vessels,  
by size classes, 1979-83

Item	1979	1980	1981	1982	1983
45-foot groundfish dragger					
Share of gross revenues (percent)					
Labor	31.8	21.1	25.8	27.5	15.9
Fuel	18.1	30.5	30.0	27.5	39.6
Interest	2.6	23.4	11.2	10.5	14.5
Maintenance and repairs	11.4	11.5	11.4	11.4	11.6
Insurance	5.4	6.1	4.8	4.6	7.5
Per pound of landings					
Labor	\$0.110	\$0.069	\$0.101	\$0.123	\$0.065
Fuel	.063	.010	.117	.123	.162
Interest	.009	.076	.044	.047	.059
Maintenance and repairs	.040	.038	.044	.051	.047
Insurance	.019	.020	.019	.020	.031
60-foot groundfish dragger					
Share of gross revenues (percent)					
Labor	38.2	36.7	36.9	38.5	36.4
Fuel	11.7	16.3	19.4	16.7	18.4
Interest	2.1	4.5	3.0	3.6	3.6
Maintenance and repairs	11.3	11.3	11.3	10.9	30.2
Insurance	4.4	3.8	3.5	3.4	4.3
Per pound of landings					
Labor	\$0.101	\$0.104	\$0.099	\$0.115	\$0.112
Fuel	.031	.046	.052	.050	.056
Interest	.005	.013	.008	.011	.011
Maintenance and repairs	.030	.032	.030	.033	.093
Insurance	.012	.011	.010	.010	.013

Source: Compiled from unpublished data of the U.S. Department of Commerce,  
National Marine Fisheries Service.

Table 22.--Selected costs of an 111-foot Northeastern U.S. scallop vessel, 1979-82

Item	1979	1980	1981	1982
Share of gross revenues (percent)				
Labor-----	49.5	40.1	35.4	30.1
Fuel-----	7.8	16.1	20.8	23.9
Interest-----	0.6	0.4	0.4	0.9
Maintenance and repairs-----	9.8	9.5	9.3	10.0
Insurance-----	2.5	3.5	3.6	5.2
Per pound of landings				
Labor-----	\$1.474	\$1.462	\$1.361	\$1.112
Fuel-----	.231	.585	.799	.884
Interest-----	.017	.016	.016	.034
Maintenance and repairs-----	.292	.345	.359	.367
Insurance-----	.075	.126	.140	.191

Source: Compiled from unpublished data of the U.S. Department of Commerce, National Marine Fisheries Service.

### Productivity

Physical productivity in the fisheries is usually defined as the catch-per-unit effort. Relative vessel productivity is influenced not only by such endogenous factors as the captain's skill and internal economies of size, but also by external factors such as weather and resource conditions. It is often possible to make only general observations on comparative productivity between vessels, with qualifications regarding the exogenous influences of the above factors.

Data on various measures of harvesting productivity among New England vessels are available from the National Marine Fisheries Service for 45-foot and 60-foot draggers (otter trawlers), which generally target the subject groundfish as their primary species, and for 111-foot scallop vessels. These data, covering 1979-83 (1979-82 for the scalloper), are presented in table 23. Two measures of catch-per-unit effort, representing average rates of output (pounds harvested), are included. The first, catch per day fished (CPDF), provides a measure of vessel productivity; by standardizing fishing effort (in this case, per day fished), it is possible to compare productivity among vessels. The second, catch per man-day fished (CPMDF), is an indication of labor productivity- how much fish is harvested per crew member per day fished.

The data indicate that CPDF rises as vessel size increases. In 1983, for example, a typical 60-foot groundfish dragger harvested 11,185 pounds of fish per day, compared with 6,300 pounds for the average 45-foot dragger. The higher catch rate for the larger vessel is due to larger hold capacity and nets, a greater crew size (typically, five crew members on the larger vessel compared with two on the smaller vessel), and greater access to larger,<sup>46</sup> more

Table 23.-- Measures of productivity for selected Northeastern U.S. fishing vessels, by size classes, 1979-83

Measure	1979	1980	1981	1982	1983
45-foot groundfish dragger					
Return on sales <u>1</u> /- percent	4.9	-	-	-	-
Net income or (loss) <u>2</u> / dollars	5,822	(26,448)	(10,200)	(8,368)	(19,724)
Sales -----do-	117,902	104,328	128,820	142,834	86,591
Landings-----pounds	339,133	319,034	330,820	319,897	211,676
Catch per day fished <u>3</u> / pounds	6,742	5,344	6,277	6,398	6,300
Catch per man-day fished <u>4</u> / pounds	3,371	2,672	3,139	3,199	3,150
60-foot groundfish dragger					
Return on sales <u>1</u> / percent	16.3	12.4	14.3	16.1	-
Net income or (loss) <u>2</u> / dollars	39,099	31,640	41,188	52,272	(16,082)
Sales -----do-	239,574	254,705	287,688	324,650	261,468
Landings-----pounds	909,235	899,347	1,068,986	1,085,772	851,152
Catch per day fished <u>3</u> / pounds	13,120	13,226	12,562	13,779	11,185
Catch per man-day fished <u>4</u> / pounds	2,624	3,306	3,140	2,756	2,237
111-foot scallop dragger					
Return on sales <u>1</u> / percent	17.6	17.0	17.1	13.9	<u>5</u> /
Net income or (loss) <u>2</u> / dollars	174,806	139,082	144,637	86,169	<u>5</u> /
Sales -----do-	995,232	818,236	846,598	618,636	<u>5</u> /
Landings-----pounds	334,229	224,577	220,208	167,555	<u>5</u> /
Catch per day fished <u>3</u> / pounds	2,240	1,426	1,553	1,198	<u>5</u> /
Catch per man-day fished <u>4</u> / pounds	204	130	141	109	<u>5</u> /

1/ Net income/sales.

2/ Net income before depreciation and taxes.

3/ Landings/days fished.

4/ Landings/(days fished x crew size).

5/ Not available.

Source: U.S. Department of Commerce, National Marine Fisheries Service, Gloucester, MA.

productive fishing grounds which may be further out to sea. There was no clear trend in CPDF for either size class of groundfish dragger during 1979-83; rather, CPDF moved irregularly, ranging from a high of 6,742 pounds in 1979 to a low of 5,344 pounds in 1980 for the average 45-foot vessel, and a high of 13,779 pounds in 1982 to a low of 11,185 pounds in 1983 for the average 60-foot vessel. CPDF for scallop draggers declined irregularly from 2,240 pounds in 1979 to 1,198 pounds in 1982, or by 47 percent. This decline was a direct result of sharply reduced annual landings owing to scarce resources, with a slight decrease in the number of days fished.

CPMDF was generally higher for the crews of the groundfish vessels in the 45-foot size class, averaging 3,106 pounds per crewmember during 1979-83 compared with 2,813 pounds for the 60-foot vessels. Although there was no clear trend in CPMDF for the typical vessel in the 45-foot size class during the period, CPMDF for vessels in the 60-foot size class, after rising from 2,624 pounds in 1979 to 3,306 pounds in 1980, fell to 2,237 pounds in 1983. This resulted from a combination of increased number of days fished (68 in 1980 to 76 in 1983) without a commensurate increase in pounds harvested (which actually declined from 899,347 pounds in 1980 to 851,152 pounds in 1983), plus an increase in average crew size from 4 in 1979-81 to 5 in 1982 and 1983. For the average scallop dragger, CPMDF declined irregularly from 204 pounds in 1979 to 109 pounds in 1982, or by 47 percent. This drop in scallop output per crewmember resulted primarily from a decline in total landings (from 334,229 pounds in 1979 to 167,555 pounds in 1982) despite a stable crew size and only a slight decline in the number of days fished.

#### Processing Sector

Although landed groundfish (particularly cod, haddock, and pollock) are "processed" by fishermen (who eviscerate the fish before bringing them to port), for practical purposes, fish "processing" in the Northeastern United States includes only those activities carried out by onshore operations: washing, filleting, freezing, breaching, packaging, and so forth.

These firms produce a variety of products, from dressed or headed fish and fresh or frozen fillets and steaks to breaded fish sticks and portions. Most groundfish products are marketed either fresh or frozen, but canned, smoked, and salted groundfish products are also produced in relatively small quantities. Firms that purchase frozen blocks of groundfish to cut into fish sticks and portions are called converters; these firms deal virtually entirely with imported product and produce products that are only of incidental concern to this study.

Scallops are landed by fishermen already shucked (taken out of the shell) and so are virtually completely processed when brought in to port. Processors that buy scallops will wash and repack them, adding little product value in the process. Some scallops are frozen; most are marketed fresh.

Processing firms in the Northeastern United States usually operate only one plant, although multiplant operations exist in limited number. Most plants produce either fresh or frozen groundfish products; a few produce both. Fresh fish plants are usually smaller and more labor intensive than frozen fish plants; this allows them the flexibility to more easily adjust

capacity utilization and species product mix in response to supply or demand fluctuations. Few processing firms operate their own fishing vessels, although frequently fishermen will have informal supply "contracts" with processors, at least for short periods of time (e.g., a fishing season). Forward integration into wholesaling and, in some cases, retailing, exists, especially with fresh fish processors.

#### Number of plants and employment

Table 24 shows the number of plants producing fresh and frozen groundfish fillets and steaks in the Northeastern United States during 1979-83.

Table 24.--Number of firms producing fresh and frozen groundfish fillets and steaks in the Northeastern United States, by States, 1979-83

State	1979	1980	1981	1982	1983
Maine	17	18	21	21	21
Massachusetts	59	59	58	52	49
New Hampshire	0	1	1	2	2
Rhode Island	2	2	2	10	15
Connecticut	0	0	0	0	1
New York	12	14	17	18	18
New Jersey	2	1	1	1	1
Pennsylvania	1	2	1	0	0
Virginia	4	6	6	5	3
Total	97	103	107	109	110

Source: Compiled from official statistics of the U.S. Department of Commerce, National Marine Fisheries Service.

The number of plants producing fresh and frozen groundfish fillets and steaks increased from 97 in 1979 to 110 in 1983. Of the 110 plants operating in 1983, 86 were located in New England. Of these, 70 were in Massachusetts and Maine.

Table 25 presents employment in plants producing the subject groundfish fillets and scallops in the Northeastern United States during 1979-83. In 1983, some 3,117 persons were employed in groundfish and scallop processing in the Northeastern States on an annual average basis. This represents a 5-percent increase from the 2,980 annual average in 1979, and a 2-percent decline from a recent high of 3,190 persons in 1981. The State with the largest employment throughout the period was Massachusetts, followed by Maine. These two States together accounted for 73 percent of 1983 employment, down from 78 percent during 1979-82. Relative employment shares have shifted from these States primarily to other New England States, with little growth in employment share in other Northeastern States.

Table 25.--Number of employees in plants producing groundfish fillets and scallops <sup>1/</sup> in the Northeastern United States, by States, 1979-83

State	1979	1980	1981	1982	1983
Maine	465	471	583	753	603
Massachusetts	1,805	1,647	1,967	1,498	1,675
New Hampshire, Rhode Island, and Connecticut	<sup>2/</sup>	175	134	209	392
New York	94	101	133	118	117
Other <sup>3/</sup>	616	399	373	338	330
Total	2,980	2,793	3,190	2,916	3,117

<sup>1/</sup> Includes only groundfish and scallops that are the subject of this report.

<sup>2/</sup> Confidential; included in "other."

<sup>3/</sup> New Jersey, Pennsylvania, and Virginia.

Source: Compiled from official statistics of the U.S. Department of Commerce, National Marine Fisheries Service.

The following tabulation shows the structure of the Northeastern U.S. groundfish- and scallop-processing industry in terms of the average annual number of employees in 1983 (based on unpublished statistics of the National Marine Fisheries Service; data are for plants with at least 75 percent of total production in the subject products):

<u>Number of employees</u>	<u>Number of plants</u>	<u>Percent of total plants</u>
1 to 4	9	18.8
5 to 9	8	16.7
10 to 19	16	33.3
20 to 49	9	18.8
50 to 99	5	10.4
100 to 249	1	2.1

In 1983, more than one-third of the groundfish- and scallop-processing plants in the Northeastern States had fewer than 10 employees; more than two-thirds of the plants had fewer than 20 employees.

Concentration is low in the Northeastern U.S. groundfish- and scallop-processing sector. According to unpublished statistics of the National Marine Fisheries Service, the top firm accounted for less than 10 percent of the region's total production of groundfish and scallops, the top 4 firms together accounted for 28 percent; and the top 8 firms together accounted for 41 percent.

## Technology

Virtually all groundfish processing in the Northeastern United States is carried out onshore. There have been very few attempts in recent years at operating fish-processing or freezing vessels in the Northeastern U.S. waters. This is because the typical fishing vessel makes trips of no more than 1 week (2 weeks at the most) before landing, usually a short enough period of time to avoid significant deterioration in fish quality.

Many onshore groundfish plants have in recent years installed automated filleting machines, fillet skinners, and so forth, but most reportedly do not use them because they require large-scale operation to be used efficiently. Particularly in fresh fillet production, raw-material supplies are frequently erratic; for that reason, most fresh fillet plants are labor intensive and relatively small operations.

New processing and packaging techniques have been developed and implemented on a limited basis in fish processing in recent years. Experiments have been conducted with irradiation, a process that kills bacteria without danger of radiation, but this has yet to obtain Government approval for commercial fish processing. Packing styrofoam "tray-packs," a common retail package, with carbon dioxide is used to promote shelflife, as is the practice of freezing and rethawing prior to sale. These and other developments are increasingly of interest to fish marketers in light of consumer concern about product quality, as well as the push to expand markets in other regions of the country, thus requiring longer transportation periods.

## Production

The products of Northeastern U.S. groundfish and scallop processors include dressed groundfish; fresh and frozen groundfish fillets and steaks; frozen groundfish blocks, which are in turn used to produce fish sticks and portions; canned or otherwise processed groundfish (which are not covered in this report); and fresh and frozen scallops.

Production of dressed groundfish involves heading, scaling, and packing for sale to distributors or retail outlets and entails relatively little labor or other direct costs.

Fillets are produced by cutting the sides of a fish lengthwise from the backbone, with the resulting fillet being a boneless (or nearly so) slice of flesh; fillets are also frequently skinned. A related product form is a fish steak, a cross section slice cut from a dressed fish. Production data for fillets include steaks; however, steaks account for a very small part of that total. Fillets are generally packed according to the market: fillets destined for retailers are usually individually tray-packed, and those channeled to wholesalers, restaurants, or institutions are generally packed in plastic, paper, or metal containers in 5- to 20-pound units. There is some significant production of domestic frozen fillets, usually during periods of heavy landings when ex-vessel prices fall low enough to justify the added processing costs (and reduced wholesale price for frozen fillets) and to

supply U.S. Defense Department purchases of frozen fish, which are required to be of domestic origin. The latter market is of "very limited volume." <sup>1/</sup>

Domestic production of frozen blocks, which is miniscule relative to U.S. block supply, involves the pressing and freezing of 10 to 20 pounds of groundfish fillets into blocks of fish. Such blocks are later cut by saws into fish sticks, squares, or other shapes, which are then usually battered, baked, and refrozen for distribution to supermarkets, fast-food restaurant chains, schools, and so forth. Domestic production of frozen blocks is low for at least two reasons: (1) U.S. ex-vessel prices are too high to make this highly processed product profitable, and (2) large, readily available quantities are available from Canada, Iceland, and other foreign producers.

Scallops generally are landed by fishermen already shucked and are subject to a minimum amount of onshore processing. Shoreside processors generally wash and repack scallops into containers of various weights, usually no more than 20 pounds. Scallops are sometimes frozen, although they usually are marketed fresh in order to capture a higher price. Processors that handle scallops generally process other types of fish. Production data for scallops are given in terms of landings, which were discussed previously.

During 1979-83, U.S. production of fresh and frozen fillets of all fish ranged from 181 million pounds, valued at \$249 million, in 1979 to 212 million pounds, valued at \$317 million, in 1983 (table 26). Production of cod, haddock, flounder, and pollock fillets, the species of concern in this report, ranged from 106 million pounds, valued at \$168 million, in 1980 to 152 million pounds, valued at \$231 million, in 1983. Such fillets accounted for 71 percent of the quantity and 73 percent of the value of total U.S. groundfish fillet production in 1983.

Northeastern U.S. production of fresh groundfish fillets of concern in this study decreased irregularly from 74 million pounds, valued at \$124 million, in 1979 to 65 million pounds, valued at \$105 million, in 1983 (table 27). Flatfish was the leading species, with Northeastern U.S. production of such fresh fillets decreasing irregularly from 30 million pounds, valued at \$59 million, in 1979 to 24 million pounds, valued at \$41 million, in 1983. During 1979-83, flatfish accounted for 40 percent of the quantity and 45 percent of the value of total Northeastern U.S. production of the fresh groundfish fillets under review.

Northeastern U.S. production of fresh cod fillets, the second leading species, increased irregularly from 22 million pounds, valued at \$32 million, in 1979 to 27 million pounds, valued at \$39 million, in 1983 (table 27). During 1979-83, cod accounted for 34 percent of the quantity and 30 percent of the value of total Northeastern U.S. fresh groundfish fillet production under review.

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<sup>1/</sup> Testimony of Frank O'Hara, transcript of the Portland hearing, p. 101.

Table 26.—Fresh and frozen fish fillets: U.S. production, by species, 1979-83

	1979	1980	1981	1982	1983
Quantity (1,000 pounds)					
Groundfish:					
Cod-----	32,956	31,259	43,203	40,929	50,428
Haddock-----	19,278	17,250	17,777	13,501	10,250
Flatfish-----	47,848	48,900	50,797	76,166	78,822
Pollock-----	10,008	8,455	9,088	8,956	12,170
Total-----	110,090	105,864	120,865	139,552	151,670
Other <sup>1/</sup> -----	27,921	28,713	28,004	30,966	29,266
Total, groundfish-----	138,011	134,577	148,869	170,518	180,936
All other fish-----	43,169	62,299	51,343	39,636	31,489
Grand total-----	181,180	196,876	200,212	210,154	212,425
Value (1,000 dollars)					
Groundfish:					
Cod-----	44,824	43,266	68,523	59,129	66,272
Haddock-----	33,275	29,034	32,882	24,698	18,405
Flatfish-----	87,918	87,418	97,970	146,541	133,521
Pollock-----	8,749	8,521	9,658	10,282	12,788
Total-----	174,766	168,239	209,033	240,650	230,986
Other <sup>1/</sup> -----	30,459	29,449	30,355	34,664	32,735
Total, groundfish-----	205,225	197,688	239,388	275,314	263,721
All other fish-----	44,177	49,764	52,407	55,346	53,085
Grand total-----	249,402	247,452	291,795	330,660	316,806
Unit value (per pound)					
Groundfish:					
Cod-----	\$1.36	\$1.38	\$1.59	\$1.44	\$1.31
Haddock-----	1.73	1.68	1.85	1.83	1.80
Flatfish-----	1.84	1.79	1.93	1.92	1.69
Pollock-----	.87	1.01	1.06	1.15	1.05
Average-----	1.59	1.59	1.73	1.72	1.52
Other <sup>1/</sup> -----	1.09	1.03	1.08	1.12	1.12
Average, groundfish-----	1.49	1.47	1.61	1.61	1.46
All other fish-----	1.02	.80	1.02	1.40	1.69
Average, all fish-----	1.38	1.26	1.46	1.57	1.49

<sup>1/</sup> Includes cusk, hake, lingcod, ocean perch, pacific pollock, rockfish, sablefish, and whiting.

Source: Compiled from official statistics of the U.S. Department of Commerce, National Marine Fisheries Service.

Table 27.--Fresh groundfish fillets: 1/ Northeastern U.S. production, by species, 1979-83

Species	1979	1980	1981	1982	1983
Quantity (1,000 pounds)					
Flatfish-----	30,360	29,429	31,871	21,796	24,105
Cod-----	22,490	23,368	21,104	23,020	26,834
Haddock-----	15,422	13,742	14,066	10,912	9,721
Pollock-----	5,381	5,554	4,559	5,666	4,701
Total-----	73,653	72,092	71,600	61,394	65,361
Value (1,000 dollars)					
Flatfish-----	59,083	55,993	66,598	42,994	41,312
Cod-----	32,339	33,634	35,447	36,911	39,316
Haddock-----	27,119	22,938	26,052	20,055	18,932
Pollock-----	5,437	5,675	5,203	6,788	4,962
Total-----	123,978	118,240	133,300	106,748	104,522
Unit value (per pound)					
Flatfish-----	\$1.95	\$1.90	\$2.09	\$1.97	\$1.71
Cod-----	1.45	1.45	1.68	1.61	1.47
Haddock-----	1.76	1.67	1.85	1.84	1.95
Pollock-----	1.01	1.02	1.14	1.20	1.06
Average-----	1.68	1.64	1.86	1.74	1.60

1/ Also includes steaks.

Source: Compiled from unpublished statistics of the U.S. Department of Commerce, National Marine Fisheries Service.

Fresh haddock fillet production in the Northeastern United States decreased from 15 million pounds, valued at \$27 million, in 1979 to 10 million pounds, valued at \$19 million, in 1983, or by 37 percent in quantity and by 30 percent in value (table 27). During 1979-83, haddock accounted for 19 percent of the quantity and 20 percent of the value of total Northeastern U.S. production of the subject fresh groundfish fillets.

Northeastern U.S. production of fresh pollock fillets fluctuated during 1979-83, ranging from 5 million pounds, valued at \$5 million, in 1981 to 6 million pounds, valued at \$7 million, in 1982 (table 27). Such production accounted for 8 percent of the quantity and 5 percent of the value of total Northeastern U.S. production of the subject fresh groundfish fillets during 1979-83.

Northeastern U.S. production of frozen groundfish fillets showed no discernable trend during 1979-83, ranging from 11 million pounds, valued at \$17 million, in 1982 to 24 million pounds, valued at \$39 million, in 1981 (table 28). Frozen flatfish fillet production in the Northeastern United States ranged from 3 million pounds, valued at \$5 million, in 1980 to

Table 28.--Frozen groundfish fillets: 1/ Northeastern U.S. production, by species, 1979-83

Species	1979	1980	1981	1982	1983
Quantity (1,000 pounds)					
Flatfish-----	3,616	3,183	3,551	3,493	6,156
Cod-----	6,230	5,101	13,224	3,332	3,664
Pollock-----	3,276	2,789	3,962	2,574	4,498
Haddock-----	3,519	3,413	3,711	2,039	1,621
Total-----	16,641	14,486	24,448	11,438	15,939
Value (1,000 dollars)					
Flatfish-----	6,200	4,535	6,132	5,921	10,233
Cod-----	8,339	6,956	22,396	4,998	5,008
Pollock-----	2,548	2,761	3,962	2,823	4,907
Haddock-----	5,725	5,980	6,830	3,543	2,507
Total-----	22,812	20,232	39,320	17,285	22,655
Unit value (per pound)					
Flatfish-----	\$1.71	\$1.42	\$1.73	\$1.70	\$1.66
Cod-----	1.34	1.36	1.69	1.50	1.37
Pollock-----	.82	.99	1.05	1.10	1.10
Haddock-----	1.63	1.75	1.84	1.74	1.55
Average-----	1.37	1.40	1.61	1.51	1.42

1/ Includes steaks.

Source: Compiled from unpublished statistics of the U.S. Department of Commerce, National Marine Fisheries Service.

6 million pounds, valued at \$10 million, in 1983. During the period under review, flatfish accounted for 24 percent of the quantity and 27 percent of the value of total Northeastern U.S. production of the frozen groundfish fillets of concern in this study.

Frozen cod fillet production in the Northeastern United States ranged from 3 million pounds, valued at \$5 million, in 1982 to 13 million pounds, valued at \$22 million, in 1981 (table 28). During 1979-83, such production accounted for 38 percent of the quantity and 39 percent of the value of total Northeastern U.S. production of the frozen groundfish fillets under review.

Northeastern U.S. production of frozen pollock fillets ranged from 3 million pounds, valued at \$3 million, in 1982 to 4 million pounds, valued at \$5 million, in 1983 (table 28). Pollock accounted for 21 percent of the quantity and 14 percent of the value of total production of the subject frozen groundfish fillets in the Northeastern United States during 1979-83.

Frozen haddock fillet production in the Northeastern United States decreased from 4 million pounds, valued at \$6 million, in 1979 to 2 million pounds, valued at \$3 million, in 1983, or by 54 percent in quantity and by 56 percent in value (table 28). Haddock accounted for 17 percent of the quantity and 20 percent of the value of total Northeastern U.S production of the subject frozen groundfish fillets during 1979-83.

Northeastern U.S. production of frozen groundfish blocks showed no discernable trend during 1979-83, ranging from 783,000 pounds, valued at \$792,000, in 1981 to 5 million pounds, valued at \$4 million, in 1979 (table 29). Pollock was the principal species, accounting for 41 percent of the quantity and 30 percent of the value of such production during 1979-83; cod accounted for 38 percent of the quantity and value during the period. Smaller quantities of haddock and flatfish blocks are produced owing mainly to the higher relative value of these species in other product forms.

Table 29.--Groundfish blocks: Northeastern U.S. production, by species, 1979-83

Species	1979	1980	1981	1982	1983
Quantity (1,000 pounds)					
Pollock-----	1,358	<u>1/</u>	<u>1/</u>	<u>1/</u>	2,118
Cod-----	2,468	<u>1/</u>	<u>1/</u>	1,183	<u>1/</u>
Haddock-----	<u>1/</u>	<u>1/</u>	<u>1/</u>	<u>1/</u>	<u>1/</u>
Flatfish-----	<u>1/</u>	<u>1/</u>	<u>1/</u>	<u>1/</u>	<u>1/</u>
Total-----	4,535	1,042	783	2,500	3,141
Value (1,000 dollars)					
Pollock-----	770	<u>1/</u>	<u>1/</u>	<u>1/</u>	1,727
Cod-----	2,409	<u>1/</u>	<u>1/</u>	1,415	<u>1/</u>
Haddock-----	<u>1/</u>	<u>1/</u>	<u>1/</u>	<u>1/</u>	<u>1/</u>
Flatfish-----	<u>1/</u>	<u>1/</u>	<u>1/</u>	<u>1/</u>	<u>1/</u>
Total-----	4,099	1,406	792	3,263	2,987
Unit value (per pound)					
Pollock-----	\$0.57	<u>1/</u>	<u>1/</u>	<u>1/</u>	\$0.82
Cod-----	.98	<u>1/</u>	<u>1/</u>	\$1.20	<u>1/</u>
Haddock-----	<u>1/</u>	<u>1/</u>	<u>1/</u>	<u>1/</u>	<u>1/</u>
Flatfish-----	<u>1/</u>	<u>1/</u>	<u>1/</u>	<u>1/</u>	<u>1/</u>
Average-----	.90	1.35	1.01	1.31	.95

1/ Data withheld to maintain confidentiality.

Source: Compiled from unpublished statistics of the U.S. Department of Commerce, National Marine Fisheries Service.

### Financial experience of U.S. processors

The Commission sent questionnaires to 124 Northeastern U.S. processors known to produce fresh and frozen whole groundfish, groundfish fillets, and scallops during 1979-83. Twelve processors provided income-and-loss data on their operations processing groundfish and scallops. Two firms started their processing operations at the end of 1979. Hence, they provided data starting from 1980. All of these firms operated as corporations. These firms together accounted for approximately 7 percent of Northeastern U.S. production of the subject groundfish and scallop products in 1983. The net sales of groundfish and scallops by these firms increased by 42 percent, from \$64.1 million in 1979 to \$91.0 million in 1982 and 1983, as shown in table 30.

Operating income on groundfish and scallops operations reported by the twelve processors declined from about \$1.6 million in 1979 and 1980 to \$1.2 million in 1981 and then increased to \$2.3 million in 1982. In 1983, operating income amounted to only \$1.3 million, representing a decline of 43 percent from the operating income level of 1982, despite almost the same level of sales. The return on sales followed a similar trend, declining from 2.5 percent in 1979 to 1.6 percent in 1981, rising to 2.6 percent in 1982, and then dropping back to 1.5 percent in 1983.

The main reason for the decline in operating income in 1981 and 1983 appears to be the general, selling, and administrative expenses (excluding officers' salaries), which increased at a faster rate than net sales. These expenses were, as a share of net sales, 7.2 percent in 1981 and 7.8 percent in 1983 compared with such expenses of about 6.6 percent in 1980 and 1982 and 6.1 percent in 1979. The cost of goods sold averaged about 90.0 percent of net sales during 1979-82 and declined slightly to 89.5 percent of net sales in 1983. This trend in the cost of goods sold resulted in a gross profit margin of about 10.0 percent during 1979-82 which then slightly increased to 10.5 percent in 1983.

Operating income margins before officers' salaries followed a trend similar to that of the operating income margins, because officers' salaries remained steady at about 1.2 percent of net sales during 1979-83. Interest expense more than doubled from \$126,000 in 1979 to \$295,000 in 1982 and 1983. However, pretax income margins followed the same trend as did the operating income margins.

Three firms reported operating losses in 1981 and 1983 compared with two firms in 1980 and 1982 and one firm in 1979. The 12 responding processors reported a positive cash flow from operations ranging from a low of \$2.1 million in 1981 to a high of \$3.3 million in 1982.

### Costs

Data on processors' costs, including raw materials, variable operating, and fixed costs, are also available for a large sample of firms in New Bedford, the region's second largest port by quantity of fish landings and the region's largest port by value. These data were obtained by a study funded by

Table 30.--Income-and-loss experience of 12 Northeastern U.S. processors on their operations processing groundfish and scallops, accounting years 1979-83

Item	1979 <sup>1/</sup>	1980	1981	1982	1983
Net sales-----1,000 dollars--	64,051	71,474	73,367	91,034	90,850
Cost of goods sold-----do-----	57,697	64,186	66,024	81,617	81,311
Gross profit-----do-----	6,354	7,288	7,343	9,417	9,539
General, selling, and administrative expenses (excluding officers' salaries)-----1,000 dollars--	3,912	4,780	5,278	6,013	7,115
Operating income before officers' salaries-----1,000 dollars--	2,442	2,508	2,065	3,404	2,424
Officers' salaries-----do-----	840	884	894	1,079	1,091
Operating income-----do-----	1,602	1,624	1,171	2,325	1,333
Interest expense-----do-----	126	229	292	295	295
Other income-----do-----	153	152	208	135	99
Net income before income taxes---do---	1,629	1,547	1,087	2,165	1,137
Depreciation and amortization included above-----1,000 dollars--	657	857	1,010	1,097	1,223
Cash flow from operations <sup>2/</sup> -----do-----	2,286	2,551	2,097	3,262	2,360
Ratio to net sales of					
Gross profit-----percent--	9.9	10.2	10.0	10.3	10.5
Operating income before officers' salaries-----percent--	3.8	3.5	2.8	3.7	2.7
Operating income-----do-----	2.5	2.3	1.6	2.6	1.5
Net income before income taxes-----percent--	2.5	2.2	1.5	2.4	1.3
Officers' salaries-----do-----	1.3	1.2	1.2	1.2	1.2
General, selling, and administrative expenses (excluding officers' salaries)-----percent--	6.1	6.7	7.2	6.6	7.8
Cost of goods sold-----do-----	90.1	89.8	90.0	89.7	89.5
Number of firms reporting					
Operating losses-----percent--	1	2	3	2	3
Net losses before income taxes-----do-----	1	3	4	3	2

<sup>1/</sup> Data are for 10 firms as 2 processors did not begin their processing operations until 1980.

<sup>2/</sup> Two firms did not provide depreciation data. Hence, cash flow from operations is somewhat understated.

Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission.

the National Marine Fisheries Service <sup>1/</sup> conducted in 1981 and 1982 to obtain cost data on fresh-groundfish-processing firms in New England.

The principal component of fresh groundfish processing in New England is, by far, the cost of raw material--the ex-vessel price. This typically constitutes 65 to 75 percent of the product price of the processing plant. For scallop processing, which typically includes little labor and only minimal other costs, raw-material cost is about 90 percent of final product price.

Direct labor is the next largest component in the groundfish processor's expenses. Direct labor costs, which include costs of fish cutters and other handlers, floor managers, and so forth, accounts for 9 to 11 percent of product price for flounders and slightly more (10 to 13 percent) for cod or haddock processing. Labor cost for scallops is minimal, less than 1 percent of the price of the processed product.

Costs of transporting of filleted groundfish to wholesale markets in New York City from either Boston or New Bedford averaged just under 5 cents per pound in 1979 for any of the subject groundfish (although little cod and less haddock is marketed in New York, the principal markets for these products being local (New England) areas). For flounder, transportation costs account for 2 to 2.5 percent of the product price, and for cod this figure was about 2.5 percent. Transportation costs for scallops to New York City were roughly the same, about 5 cents per pound, or approximately 1 percent of product price.

Other costs involved in fresh groundfish and scallop processing include packaging, water, carrying costs on accounts receivable and inventory, and fixed costs. Fixed costs, including management and clerical costs, utilities, depreciation, interest on long-term debts, and other expenses, averaged 3 to 7 percent of processed product price for groundfish and about 3 percent for scallops.

### Productivity

The following tabulation shows total production of all species, number of employees, and average output per employee for all processing plants in the Northeastern region that produce fresh and frozen fillets of the subject groundfish, for 1979-83 (compiled from unpublished statistics of the National Marine Fisheries Service):

<u>Year</u>	<u>Production</u> <u>(1,000 pounds)</u>	<u>Number of</u> <u>employees</u>	<u>Production per</u> <u>employee</u> <u>(pounds)</u>
1979-----	184,180	2,980	61,805
1980-----	126,618	2,793	45,334
1981-----	184,427	3,190	57,814
1982-----	153,441	2,916	52,620
1983-----	156,611	3,117	50,244

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<sup>1/</sup> D. Georgianna and J. Dirlam, "Industrial Structure and Cost of Fresh Atlantic Groundfish Processing," 1982.

The total number of employees rose from 2,980 in 1979 to 3,117 in 1983, or by 10 percent. At the same time, pounds processed (product weight) fell from 184 million in 1979 to 157 million in 1983, or by 15 percent. As a result, production per employee generally declined. In 1983, average output per plant employee was 50,244 pounds, representing a 19-percent drop from the 1979 level of 61,805 pounds.

This decline in worker productivity is mirrored in the data available for plants which concentrate their production on fresh and frozen fillets of the subject groundfish. The following tabulation shows for 1979-83 total production, employment, and productivity for plants in the Northeastern States for which fresh and frozen fillets of the subject groundfish constituted at least 75 percent of their total output (compiled from unpublished statistics of the National Marine Fisheries Service):

<u>Year</u>	<u>Production</u> <u>(1,000 pounds)</u>	<u>Number of</u> <u>employees</u>	<u>Production per</u> <u>employee</u> <u>(pounds)</u>
1979-----	67,506	1,330	50,756
1980-----	59,911	1,204	49,760
1981-----	70,479	1,422	49,563
1982-----	39,514	1,031	38,326
1983-----	43,856	1,025	42,786

As employment fell from 1,330 persons in 1979 to 1,025 persons in 1983, total production (all species, including the subject groundfish) fell from 68 million pounds in 1979 to 44 million pounds in 1983, or by 23 percent in employment and 34 percent in production. Consequently, average output per worker fell from 50,756 pounds in 1979 to 38,326 pounds in 1982 but then rose to 42,786 pounds in 1983. This represents an overall decline of 16 percent in productivity during 1979-83.

#### Resource Availability and Management

Most commercial fisheries are classic examples of "open access" resources, and an unregulated fishing industry encounters problems that are not generally found to such a degree in other industries. Open fisheries contain resources that are owned by everyone and no one. There are two factors at work in such a market that generally lead to often destructive tendencies: first, an unregulated fishery allows unrestricted access to the resource by all who wish to harvest it; and second, at some point congestion causes adverse impacts on other harvesters resulting from any particular individual's effort. These frequently combine to produce an industry that is inefficient, overcapitalized, and destined to low economic returns; in addition, the resource may be so exploited as to put it in a precarious position.

When a fish resource is first commercially exploited, catches rise with increased effort (e.g., number of vessels). However, as is frequently the case in resource industries, fish harvesting is subject to diminishing returns, and catch rates rise less rapidly as more vessels enter the fishery.

However, it is in the best interest of the individual harvester to increase effort by fishing longer, obtaining a larger boat, or in some other way increase his catch, because his catch will tend to rise. The problem lies in the tendency for each harvester to act this way, with an increasing number and size of vessels in the fishery trying to harvest the same (or declining) amount of fish. Costs rise and catch rates decline as each harvester continues to act "rationally" by increasing effort, not accounting for the negative impact he is imposing on others in the fishery (since the more he catches, the less is available for others).

The eventual results are high-effort levels and costs of harvesting, low revenues (since each vessel is catching fewer fish), and, if the process continues, eventually zero net returns, as vessels will stop coming into the fishery only when no profit is to be had. If effort rises high enough, the resource may be biologically endangered.

This tendency toward low returns and possible resource damage is the fundamental impetus for regulation (usually by Government) of commercial fisheries. In the case of the Northeastern U.S. groundfish fisheries, the Federal Government has in the past restricted effort by, for example, setting annual or quarterly total allowable catches. This common practice determines the total quantity of the resource that is available to harvesters (and, in the absence of imports, to processors and the market).

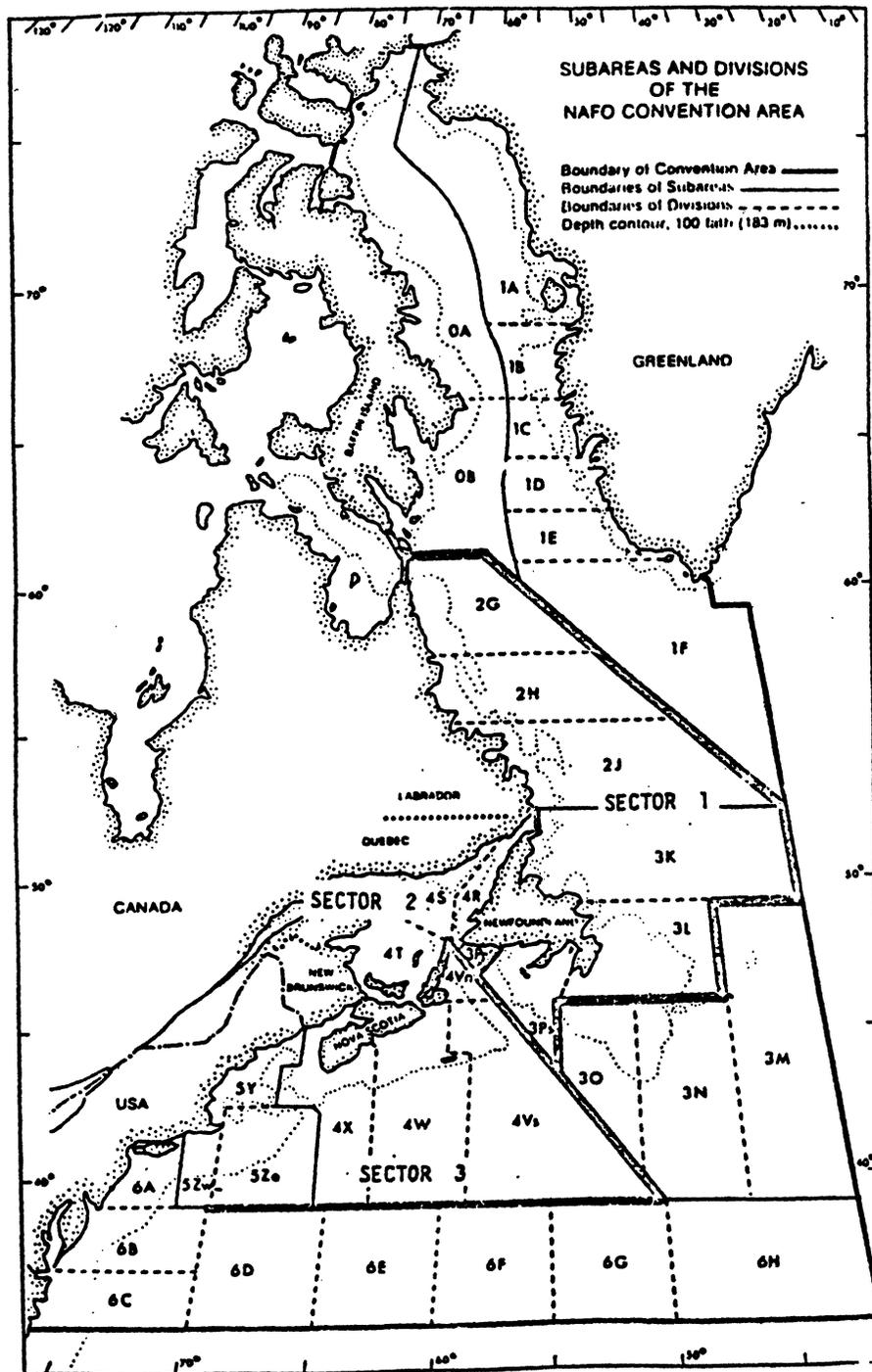
The groundfish and scallop resources available to Northeastern U.S. fishermen and Atlantic Canada fishermen have, at times in recent years, been subject to excessive fishing effort and, consequently, various forms of Government regulation and management. This management carries implications not only for resource availability for the industry and consumers, but also for industry performance and relative competitiveness.

### Background

Following a precipitous decline in groundfish harvests from the waters off Northeastern North America, from a record high of 5.9 billion pounds in 1968 to 3.9 billion pounds in 1974, industry members and Government officials in the United States and Canada grew concerned that high levels of foreign fishing effort in the Northwest Atlantic were injuring the harvesting sectors of the groundfish industries of both nations as well as endangering the fish resources themselves. In the mid-1970's, a system of quota controls on harvests was instituted by the then-governing body of offshore fishing, the International Commission for the Northwest Atlantic Fisheries, later changed to the Northwest Atlantic Fisheries Organization. Total allowable catches (TAC's) were imposed on each species in each of several areas delineated on a grid over the Atlantic waters off northeastern North America and west of Greenland (fig. 5). Separate quotas were allocated by country. These quotas in turn were to be administered by the respective country.

Starting in the 1960's, rising harvesting effort, particularly by "distant water" fleets from Soviet bloc and Western European nations and Japan placed many major species in jeopardy, bringing their populations to such low levels that sustainable yields were falling. Pressure grew in many countries, including the United States and Canada, to institute fishery conservation

Figure 5.--Major fishing grounds of the Northwest Atlantic, by NAFO divisions.



Source: Fisheries and Oceans Canada, 1982 Atlantic Groundfish Management Plan: Background Notes.

zones, so-called 200-mile limits extending national jurisdiction over harvesting rights and fisheries management to 200 nautical miles from a nation's shoreline. Such legislation was implemented in Canada in January 1977 and in the United States in March 1977.

### Availability

The availability of groundfish and scallop resources to Northeastern U.S. fishermen can be approximated by the maximum sustainable yield (MSY). The MSY is defined as the largest annual catch of fish or shellfish that can be taken continuously from a stock under existing environmental circumstances. The MSY is a long-term biological assessment of fishery stocks. The following tabulation presents the estimated MSY for the subject groundfish and scallops for the Northeastern United States area (from unpublished statistics of the National Marine Fisheries Service) (in millions of pounds): 1/

<u>Species</u>	<u>MSY</u>
Cod-----	99.2
Haddock-----	114.6
Pollock-----	24.7
Flatfish-----	205.0
Scallops-----	29.3

According to the National Marine Fisheries Service, the MSY has remained relatively stable during the period under review.

### Management

In the United States, the Magnuson Fisheries Conservation and Management Act (MFCMA) (Public Law 94-265), setting the U.S. FCZ, gives U.S. fishermen priority in harvesting fishery resources within U.S. jurisdiction (200 miles); however, where U.S. harvesting capacity is inadequate to fully utilize the TAC of a particular fishery, foreign fleets are to be given allocations out of the particular fishery's Total Allowable Level of Foreign Fishing (TALFF), that portion of the TAC not able to be harvested by U.S. vessels. Both TAC's and TALFF's are assessed annually and readjusted as necessary. There are currently no TALFF's for any of the subject groundfish or scallops in the Northeastern United States.

The MFCMA also set up eight regional fishery management councils, of which two, the New England and the mid-Atlantic councils, are responsible for fishing areas of concern in this investigation. These councils are each composed of State government officials, the regional director of the National

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1/ These data include those portions of each stock located on the Northeast Peak of Georges Bank, now under Canadian jurisdiction as a result of the International Court of Justice decision on the maritime boundary dispute between the United States and Canada.

Marine Fisheries Service, and "qualified individuals" knowledgeable about harvesting or fisheries management and conservation, who are appointed by the Secretary of Commerce from lists submitted by the governors of the member States. There are 17 such voting members in New England Council and 19 in the mid-Atlantic Council. Nonvoting members of each council include representatives of the U.S. Fish and Wildlife Service, the Coast Guard, and the U.S. Department of State.

Each regional council is charged with preparing fishery management plans (FMP's) for the fisheries needing management under its jurisdiction. An FMP is an assessment of the fishery and must contain the following:

--conservation and management measures which are necessary and appropriate for each fishery to achieve optimal yield 1/;

--a description of the fishery, including, but not limited to, the number of vessels, gear types used, species of fish and location of stocks, the costs likely to be incurred in management, actual and potential revenues from the fishery, and any recreational interests in the fishery;

--an assessment of the present and probable future condition of the fishery and the maximum and optimal sustainable yields from the fishery; and

--an assessment of the capacity and extent to which U.S. fishing vessels will harvest the optimum yield calculated in the FMP, and which portion of the optimum yield can be made available for foreign fishing.

FMP's may require licensing of vessels, the implementation of gear or time restrictions on fishing effort, or other systems of limiting entry into particular fisheries within the jurisdiction of the regional council.

Once drafted, the FMP is submitted to the Secretary of Commerce for approval. If disapproved, it returns to the council for revision and resubmission. The Secretary again considers the FMP, in consultation with the Secretary of State (with respect to foreign fishing, if any) and a representative of the Coast Guard (which, with the National Marine Fisheries Service, is responsible for enforcement of the FMP). The Secretary of Commerce may set fees for license programs requested by the council as long as such fees do not exceed the administrative costs of implementing the licensing program. After notice in the Federal Register, a public hearing, and final approval of the FMP the plan is implemented by the Secretary of Commerce.

During January 1979-March 1982, the groundfish management plan of the New England Fishery Management Council regulated the harvesting of cod, haddock, and yellowtail flounder only. Quarterly quotas were set by fishing ground, vessel size, and species, which dictated the maximum allowable catch of each

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1/ The optimal yield is defined as the amount of fish which will provide the greatest overall benefit to the Nation, with particular reference to food production, and recreational opportunities prescribed as such on the basis of the maximum sustainable yield from such fishery, as modified by any relevant economic, social, or ecological factor.

species by each vessel category. However, rarely were these quotas restrictive, as evidenced by the fact that fisheries were almost never closed because of filled quotas. The only exception to open fisheries was (and continues to be) the haddock fishery, for which the spawning grounds are closed during the spawning period for haddock, which is usually during March through May. This also affects landings of cod and flounders, which are frequently located on the same grounds as haddock.

As a result of poor compliance and ineffective enforcement of the plan's restrictions, the groundfish management plan was discontinued in 1982 in favor of the so-called Interim Plan for Atlantic Groundfish. This plan became effective on March 31, 1982, and eliminated nearly all restrictions on groundfish harvesting except for a minimum net mesh size of 5.5 inches and minimum lengths of fish that can be landed; no cod or haddock shorter than 17 inches can legally be landed, and no yellowtail flounder shorter than 11 inches can be landed. This restriction, which is currently in effect, applies to anyone who deals in these species of fish (in whole form), whether fishermen, dealers, processors, or wholesalers, and regardless of whether the fish is domestic or imported. In addition to the above regulations, the annual closure of the haddock spawning grounds remains management policy.

During the period of time between the implementation of the MFCMA (1977) and 1982, there were no management schemes regulating the scallop fishery of the Northeastern United States. Starting in 1982, however, the New England Fishery Management Council placed a minimum average count of 40 scallop meats per pound (shucked weight) harvested, in order to protect the dwindling resource. This was an average count, which prohibited scallop vessels from landing an excessive number of small scallops. This meat count has been lowered to 35 meats per pound, with the long-run intent of a 30-meat average count. Now in the development process is a scallop management plan, due out in the fall of 1984, that requires a 40-meat absolute minimum, as opposed to average count, effectively prohibiting the landing of any small scallops at all. According to a council biologist, a 40-meat minimum count will effectively bring the average count down to 30, the long-run goal.

An important factor in scallop management is the added restriction that imports of scallops harvested from Georges Bank <sup>1/</sup> (all from Canada) into the United States must meet the meat count regulations of the New England council. This is an important restriction on Canadian harvesting, since, in recent years, nearly one-half of Canada's Atlantic scallop landings originated from this area, and the bulk of Canada's scallop landings are exported to the United States. Since it is not possible to distinguish between a sea scallop from Georges Bank and one from another location, imports of smaller sea scallops must be certified by Canada as to their non-Georges Bank origin.

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<sup>1/</sup> The scallop resource of Georges Bank was at the center of a dispute between the United States and Canada concerning the delimitation of the Atlantic maritime boundary between the two nations. The case was argued before the International Court of Justice with a final (binding) decision handed down on Oct. 12, 1984. For an assessment of the Court's decision, see the competitive conditions section further in the report.

## Government Programs

Public financial assistance specifically directed to the fishing industry of the Northeastern United States is available only from programs at the Federal Government level administered by the National Marine Fisheries Service. These programs and others that relate indirectly to the fishing industry can be grouped under three broad categories: construction assistance; operating cost assistance; and technical and marketing services.

### Construction assistance

The National Marine Fisheries Service provides loan guarantees to qualified borrowers under the Fishing Vessel Obligation Guarantee Program (FVOG). The FVOG guarantees loans for the construction, reconstruction, or reconditioning of fishing vessels and, as of December 1982, shoreside facilities such as processing plants. Up to 87.5 percent of the cost of construction or refurbishment may be borrowed from private lenders, although in recent years, the Government has frequently required as much as a 20-percent downpayment. If the borrower cannot find private financing, the Government will seek private lenders, usually brokerage houses or local banks, and negotiate financing between the lender and borrower. Interest rates charged the borrower usually fall in the prime less 1- or 2-percent range; loan maturities range from 15 to 25 years.

As of January 31, 1984, there were 109 active loans under the FVOG program in the New England and mid-Atlantic States, at a total loan value of \$30 million. Of these, 54 represented loans financing the acquisition of new vessels between 1979-83. The following tabulation shows these new vessel loans, by gear types (from data obtained from the National Marine Fisheries Service):

<u>Vessel type</u>	<u>Number of vessels</u>	<u>Total loan amount</u> <u>(1,000 dollars)</u>
Dragger-----	27	\$8,814
Scallop-----	10	5,030
Longliner-----	2	438
Lobster boat-----	7	889
Party fishing boat---	<u>8</u>	<u>1,589</u>
Total-----	54	\$16,760

Since December 1982, shoreside facilities have been eligible for loan guarantees under the FVOG. However, only one such loan guarantee in the Northeastern United States has been completed, made in the first half of 1984, financing the reconstruction of and an addition to an existing fish-processing plant (mainly squid and mackerel). The loan value in this case was approximately \$390,000.

Another Government assistance program available to the Northeastern U.S. fishing industry is the Fishing Vessel Capital Construction Fund (FVCCF), which provides assistance for vessel acquisition only. Under the program, fishermen may defer payment of Federal income tax on any portion of their

income earned from fishing that is set aside in the fund. The money in the fund is to be used by the fisherman for payment toward the cost of vessel construction or reconstruction. The FVCCF allows for an effectively interest-free "loan" from the U.S. Government equal to the Federal income taxes which would otherwise have to be paid. The depreciable value of the new vessel is reduced by the amount of the investment from the fund. In this way, depreciation charges are reduced and taxable net income from the vessel operation is higher, allowing the deferred Federal income tax to be repaid through the depreciable life of the vessel.

Table 31 shows for 1979-83 the number of Northeastern U.S. fishing vessels involved in the fund, by fisheries, and the total value of money in the fund from Northeastern U.S. fishermen.

Table 31.--Number of Northeastern U.S. fishing vessels involved in the Fishing Vessel Capital Construction Fund, by fisheries, and total value of money in the Fund from Northeastern U.S. fishermen, 1979-83

Year	Vessels				Fund value
	Groundfish	Scallops	Other	Total	
	Number of vessels				(Millions of dollars)
1979	62	18	51	131	33.2
1980	14	35	49	98	14.3
1981	9	5	35	49	8.2
1982	11	5	32	48	21.9
1983	18	1	27	46	22.3

Source: Derived from unpublished data of the U.S. Department of Commerce, National Marine Fisheries Service.

#### Operating costs assistance

Financial assistance directed to Northeastern U.S. fishermen for offsetting such operating costs as fuel was not available from Federal or State agencies at any time during 1979-83. There are, however, Federal programs available to provide compensation for loss or damage to gear resulting from a variety of causes.

Under the Fishermen's Protective Act of 1967, the Fishing Vessel and Gear Damage Compensation Fund provides for the compensation to fishermen for gear damage resulting from manmade acts, such as damage from other vessels, and (until 1980) acts of God. The financing of this program is provided by revenues received from fees assessed to owners of seized foreign fishing vessels. The following tabulation outlines, for all U.S. fishermen, the number of claims paid, total claim expenditures, average claim value, and the approximate proportion of total claims that were paid to New England fishermen

from 1979, the initial year of the program, to 1982 (data from unpublished statistics of the U.S. Department of Commerce, National Marine Fisheries Service):

Year	Number of claims <sup>1/</sup>	Total value	Average value per claim	Share of value in New England (Percent)
1979-----	126	\$258,448	\$2,051	25 to 30
1980-----	96	4,284,508	44,630	5 to 10
1981-----	214	1,532,063	7,159	25 to 30
1982-----	84	455,159	5,419	30 to 35

<sup>1/</sup> Approximately 40 percent of the claims made during 1979-82 were by New England fishermen.

The Fishermen's Contingency Fund, a part of the 1978 Outer Continental Shelf Lands Acts Amendment, compensates fishermen for damage to gear arising from outer continental shelf energy activities. Since there has been virtually no such reported damage to Northeastern U.S. fishing vessels, there are no data on expenditures for the Northeastern region under this program.

#### Technical and marketing services

The Federal Government, through the National Oceanographic and Atmospheric Administration (NOAA), provides extensive information and services to the Northeastern U.S. fishing industry, including activities related to the technical matters of gear and vessel operation; marketing information, including prices and landings data, export opportunities, and economic conditions in domestic and foreign markets; development of underutilized species products; and a voluntary fish inspection service for processors.

The National Sea Grant Program of NOAA is a valuable source of information and services to the industry in the funding of scientific and economic studies, product and technical development, and other activities that aid both harvesters and processors. Funding for the program is provided jointly by the NOAA and the numerous universities that have Sea Grant programs.

#### Other assistance

At major New England fishing ports, extensive redevelopment projects are occasionally undertaken, financed largely, if not exclusively, through Federal, State and local government agencies.

In Boston, construction began in 1979 on a redevelopment project at the Boston Fish Pier, which houses the New England Fish Exchange - the daily auction. Boston is the third largest fish port in Massachusetts, in terms of volume, and the eighth in the Northeastern region, with 27.2 million pounds landed in 1982, valued at \$11.8 million, plus an estimated 50 million pounds of fish shipped in from other U.S. and foreign ports. The redevelopment

project, funded jointly by the Massachusetts Port Authority (Massport) and the Economic Development Administration (EDA) of the U.S. Department of Commerce, included the construction of fish-processing and commercial office facilities, a fender pile system, traffic-related improvements, and utilities installation. Since Massport received no public funding from the State for its share of the project, the funds provided by Massport must be recovered, primarily through leasing of the facilities to private businesses, including fish processors and other fisheries-related businesses, as well as some non-fisheries-related businesses. Approximately 55 percent (\$10.5 million) of the total project funds provided by Government sources are Massport funds; the remaining 45 percent (\$8.5 million) was provided by a grant from the EDA. The development by Massport of the pier has since stimulated additional investment by processing and harvesting firms, including an undetermined amount provided by various Government economic development agencies.

In the 1960's, in New Bedford, the largest fishing port in the Northeastern United States in terms of value and second in terms of quantity, a \$4 million development project was undertaken in the South Terminal area, where many of the port's fish-processing plants are located. The project was funded by local (12.5 percent of the total), State (12.5 percent), and Federal (75 percent) Government development agencies. Land in the area was reclaimed and sold to fish-processing firms, which have since built or expanded their facilities to accommodate the increased supply of fish in New Bedford. More recent development has occurred at the New Bedford fish auction area, where Piers 3 and 4 were converted to one large pier at a cost of \$1.3 million, 100 percent financed by the EDA. Private investment by processors has expanded as well, assisted by the reduction in interest costs obtained by issuing industrial development bonds. These bonds are State-authorized financing tools that allow private investors to lend money at reduced interest rates (often 66 to 75 percent of prevailing prime rates), because of the Federal-tax-exempt nature of the bonds. At least 10 separate projects involving the New Bedford fish-processing industry were so financed between 1978 and 1982, which represented a total of approximately \$17 million in issued bonds, according to an official of the New Bedford Economic Development Council.

Other Federal agencies providing potential sources of financial assistance to Northeastern U.S. fishermen include the Small Business Administration, the Farmers' Home Administration, and the U.S. Department of Housing and Urban Development. Although no programs are specifically aimed at fishermen or fish processors, several types of activities provided to industry in general, such as loans and infrastructure development (harbor or transportation facilities), indirectly benefit the fishing industry.

The Small Business Administration (SBA) provides loans for fishing vessel or onshore facilities acquisition, covering 67 percent of the cost of acquisition. Only enterprises which are not eligible for National Marine Fisheries Service assistance are eligible, which in 1983 and 1984 included only fishing vessels under 5 net tons. Larger vessels and shoreside facilities (including processors) were ineligible for SBA loans. In addition, Local Development Companies (LDC's) are set up by the SBA to finance economic development on a municipal level. With 30 percent SBA financing, LDC's will provide an additional 10 percent of project cost, with 60 percent privately financed. As with SBA loans, LDC assistance is available only for those enterprises ineligible for NMFS assistance. Injury arising from natural

disasters (such as natural contamination of marine resources) or economic injury (e.g., from displacement by Federal highway construction) is protected by the SBA with loans and loan guarantees for reestablishment of affected businesses. Reduced interest rates are available and principal and interest repayment can be deferred for up to 3 years.

The Farmers' Home Administration (FmHA) provides loan guarantees to private enterprises for equipment and plant acquisitions. Although this could include fisheries operations, the Massachusetts government notes that very limited fisheries financing by the FmHA has occurred due to "the failure to recognize fishing as a legitimate 'farming' activity." <sup>1/</sup> The Farm Credit System of the Farm Credit Administration has provided numerous loans to the Northeastern U.S. fishing industry in recent years for the acquisition of fishing vessels. Loans cover up to 75 percent of vessel cost and have a maximum 7-year maturity. In addition, the Farm Credit System can provide loans to fishermen's cooperatives for acquisition of land, buildings, vessels, and equipment.

Community Development Block Grants from the Department of Housing and Urban Development provide funds to communities for support of economically underdeveloped areas. Numerous Northeastern U.S. communities, including the major fishing ports, are eligible for this funding, providing potential sources of assistance for onshore processing and other fisheries-related facilities.

In addition to Federal assistance, State and many local governments provide economic development financing which directly or indirectly assists the Northeastern U.S. fishing industry. Such projects include harbor dredging and port development and infrastructure support. In addition, State assistance is provided with respect to marketing new or traditional species and product forms.

Two additional acts of Congress directly affect Northeastern U.S. fishermen and processors. The "Jones Act" (46 U.S.C. 883) requires that any vessel flying a U.S. flag engaged in commercial fishing in the United States must have a U.S.-built hull and, thus, forbids U.S. fishermen from acquiring foreign-built vessels for use in U.S. commercial fisheries. The "Nicholson Act" (46 U.S.C. 251) forbids foreign vessels from landing fish directly in U.S. ports, thus protecting U.S. fishermen from direct competition from foreign fishermen but restricting the supply of fish somewhat to U.S. processors.

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<sup>1/</sup> Commonwealth of Massachusetts, "A Report of the 200 Mile Fisheries Working Group," Boston, 1977. p. 18.

## CANADIAN INDUSTRY

The Atlantic Canada region consists of five Provinces: the three Maritime Provinces of Nova Scotia, New Brunswick, and Prince Edward Island; Quebec; and Newfoundland and Labrador ("Newfoundland") (fig. 6). This region in 1982 employed some 73,000 persons in fish harvesting and processing, about 2 percent of the region's total employment (8 percent, excluding Quebec).

Fresh and frozen groundfish and scallops are major products of the region, accounting for \$451 million (U.S.) in 1982, or 38 percent of total Atlantic Canada production of fish products. Of primary importance to the industry are frozen products--groundfish fillets and blocks--which account for most of the value of groundfish output. Because of transportation considerations and supply fluctuations, little emphasis is placed on production of fresh groundfish products, except by small-scale Nova Scotia processors, with the flexibility and proximity to U.S. markets that allow them to adjust to market and supply fluctuations. The larger, more capitalized plants focus on frozen fillet and block production, as well as the marketing of much of the output of smaller plants. Throughout the industry, emphasis is placed on export markets--primarily the United States--which in 1982 accounted for most of the region's fresh and frozen groundfish production.

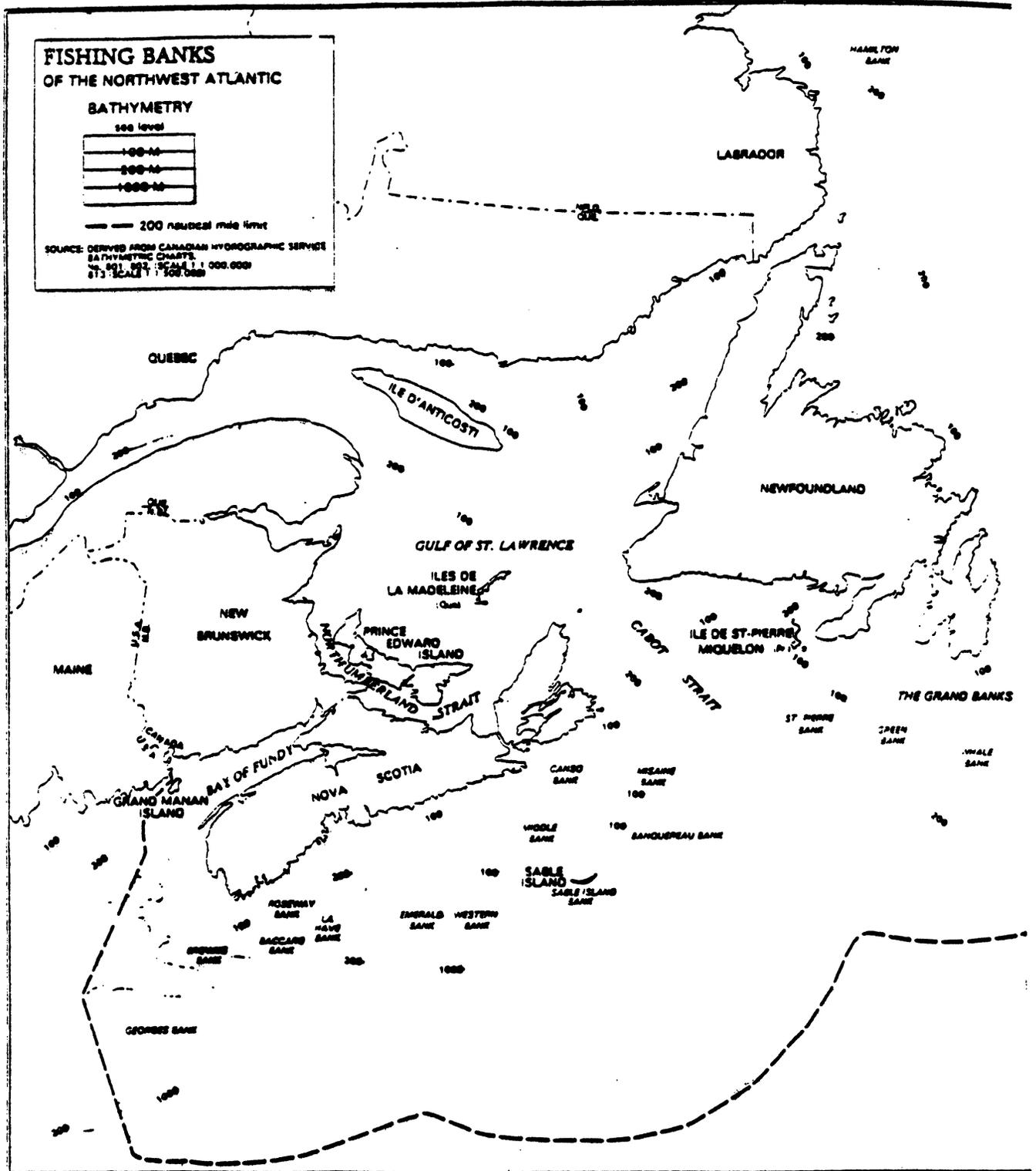
The degree of vertical and horizontal integration in fish processing and harvesting is very high. At present, two firms together account for at least 75 percent of frozen groundfish production and own and operate numerous large and small processing plants throughout the region; in addition, these firms own and operate almost all the large, offshore fishing vessels, which account for as much as one-half of the region's total groundfish and scallop harvests. This concentration is the result of recent merger activities orchestrated by the Federal Government, in which the five larger vertically integrated processors were, in 1983, merged with several smaller, one-plant firms into the two firms which now dominate the industry.

As with the Northeastern U.S. industry, high levels of effort and capitalization exist in Atlantic Canada harvesting and processing, resulting in intervention by Federal and Provincial governments in the regulation of such effort. At the same time, financial assistance is provided to the industry from both levels of government, attempting to alleviate the problems resulting from the boom-bust cycle of the industry and low returns to many fishermen.

## Harvesting sector

Broadly, there are two general groups of fishermen in Canada: the inshore fisherman, rural, usually working the waters within sight of land in a vessel that can range from a dory to a 50- to 60-foot dragger or longliner, manned by himself or with a crew of 1 to 4 members; and the offshore fisherman, who works on the crew of a company-owned, large, offshore trawler. The latter is in a year-round occupation, but the former is often lucky to fish 5 months out of the year before weather, ice, and migrating fish resources keep him on shore.

Figure 6.--Atlantic provinces of Canada.



Source: Reprinted from Nova Scotia Dept. of Fisheries, Fisheries Atlas.

Although employment is concentrated in the inshore fisheries, output of Canadian harvesting is largely the product of the offshore sector--the 100- to 500-foot vessels with vastly superior harvesting capability compared with that of the inshore vessels. Although these vessels and the crew they employ are few in number, they account for 50 percent or more of the total Atlantic Canada catch, with much higher proportions for some species such as haddock.

Groundfish are the principal species landed by both the inshore and offshore fleets, with scallops also being very important for the offshore fleet. Cod is, by far, the principal inshore catch; these landings are channeled through small, seasonal processors that exist largely to accommodate the glut of landings when the inshore fishery is "in season." Haddock, flounders, pollock, scallops, and some cod are the domain of the offshore vessels, which are owned and operated almost exclusively by vertically integrated fish-processing companies that operate large, yearround processing plants.

Prices for the inshore sector are set either by union contract as in Newfoundland, or competitively, as in most other areas. These prices reflect the frozen product destination of the fish, the low opportunity cost of inshore labor, and the often low quality of cod caught inshore. Offshore prices are set indirectly through contract negotiations between processing management and crew unions and are largely a simple, internal transfer price between the processor and its vessel.

### Technology

Offshore vessels in Atlantic Canada are among the most modern and well-equipped nonfreezer trawlers in the world. They are relatively capital intensive, with several types of electronic gear (radar, loran C, sonar, radios and telephones, and so forth) and are expensive, easily costing over \$1 million. This compares with the most common fishing vessel in Canada, the inshore "multipurpose" vessel, under 25 feet in length, with, at the most, a CB radio and radar.

Lack of capital frequently restricts the inshore fishermen from expanding the scale of their operations to larger and more sophisticated vessels. However, with Provincial and Federal Government stimulus, there has been a shift in recent years to independent ownership of larger, more capitalized "nearshore" vessels, from 35 to 65 feet in length.

### Number of vessels and employment

Commercial saltwater fishing in Canada is centered in the five Atlantic Coast Provinces, which, in descending order of landed value of fish, are Nova Scotia, Newfoundland, New Brunswick, Prince Edward Island, and Quebec. Fishermen in these Provinces accounted for the entire Atlantic groundfish harvest and 88 percent, by value, of the total Canadian Atlantic and Pacific groundfish catch.

Table 32 shows the number of registered vessels in each Atlantic Province during 1979-82.

Table 32.--Number of registered vessels in Atlantic Canada, by Provinces, 1979-82

Year	Nova Scotia	Newfoundland	New Brunswick	Prince Edward Island	Quebec	Total Atlantic Canada
1979-----	6,988	19,097	3,073	1,569	2,533	33,260
1980-----	7,302	19,684	3,178	1,608	2,504	34,276
1981-----	6,689	17,135	3,102	1,534	2,485	30,945
1982-----	6,396	17,000	2,875	1,494	2,500	30,265

Source: Compiled from official statistics of the Canadian Department of Fisheries and Oceans, Economic Policy Branch, Ottawa.

In 1982, there were 30,265 registered fishing vessels in Atlantic Canada that harvested a total catch of 2.64 billion pounds of fish, valued at \$478 million. Of this, groundfish that are the subject of this investigation accounted for 1.53 billion pounds, valued at \$207 million, or 58 percent and 43 percent of the total quantity and value, respectively. The total number of fishing vessels registered in Atlantic Canada decreased from 33,260 in 1979 to 30,265 in 1982, or by 9 percent. Of the vessels existing in 1982, 56 percent were found in Newfoundland, and 21 percent, in Nova Scotia, by far the most important fishing Provinces in Atlantic Canada.

The following tabulation presents the number of registered vessels in 1981, by Provinces and by tonnage categories (as compiled from official statistics of the Canadian Department of Fisheries and Oceans, Economic Policy Branch, Ottawa):

Province	<u>Under 25</u> <u>tons</u>	<u>26 to 49</u> <u>tons</u>	<u>50 to 99</u> <u>tons</u>	<u>Over 100</u> <u>tons</u>
Nova Scotia-----	6,097	277	122	193
Newfoundland-----	17,711	274	99	97
New Brunswick-----	2,893	93	80	36
Prince Edward Island-----	1,525	2	2	5
Quebec-----	<u>2,331</u>	<u>89</u>	<u>42</u>	<u>23</u>
Total, Atlantic Canada-----	30,557	1,009	345	354

The sizes of fishing vessels in Atlantic Canada vary widely, from small skiffs with a crew of 1 or 2 persons, to large, offshore trawlers, with complements of 12 to 15 persons. The groundfish-harvesting industry of

Atlantic Canada can be divided into two segments on the basis of the size of these vessels: the inshore fishery (vessels less than 25 gross tons), which in 1981 consisted of 30,557 boats, operating only during the warmer months of the year and usually fishing within sight of land, and the offshore fishery (vessels 25 gross tons or greater), consisting in 1981 of 1,708 vessels, operating yearround and fishing the large, offshore fishing banks on the Atlantic Canadian continental shelf. The bulk of the inshore fishery is concentrated in Newfoundland and, to a lesser extent, in New Brunswick, Prince Edward Island, and Quebec. The offshore fishery is located mainly in Nova Scotia, which accounted for 35 percent of the offshore vessels in 1981.

Virtually all inshore vessels are independently owned by fishermen, but most offshore vessels, particularly those in excess of 100 tons, are owned and operated by vertically integrated fish-processing companies. The nearshore fishery (vessels in the 26 to 49 gross ton range) largely represents a trend in recent years toward independent ownership of larger, more seaworthy vessels.

The following tabulation shows the number of registered fishing vessels in Atlantic Canada, by tonnage classes, during 1979-81 (compiled from official statistics of the Canadian Department of Fisheries and Oceans, Economic Policy Branch, Ottawa):

<u>Year</u>	<u>Under 25</u> <u>tons</u>	<u>26 to 49</u> <u>tons</u>	<u>50 to 99</u> <u>tons</u>	<u>Over 100</u> <u>tons</u>
1979-----	31,997	608	304	351
1980-----	32,939	659	325	353
1981-----	29,511	735	345	354

The number of inshore vessels in Atlantic Canada decreased during 1979-81, from 31,997 in 1979 to 29,511 in 1981, or by 7.8 percent. At the same time, the number of offshore vessels increased by 13.5 percent, from 1,263 in 1979 to 1,434 in 1981.

#### Gear types

Just as there is a wide range of vessel size in the Canadian fishing industry, there is also an array of gear types employed in harvesting. The bulk of the total groundfish catch is made by trawlers and draggers using otter trawls.

The second most important gear type in terms of quantity of fish landed--and the mainstay of the inshore fisherman--is the gill net.

Other important gear types include traps for cod, lobster, and other species; seines; and longlines. The following tabulation shows the average annual harvest of fish and shellfish in Atlantic Canada, by various gear

types, during 1979-81 (compiled from official statistics of the Canadian Department of Fisheries and Oceans; data in millions of pounds):

Gear type	1979	1980	1981	Average 1979-81	
				Millions of pounds	Percent of total
Otter trawls	854	848	990	897	34
Gill-nets	388	426	390	401	15
Traps	252	256	239	249	9
Seines	305	340	304	316	11
Longlines	197	239	283	240	9
Other	826	549	423	599	22
Total	2,733	2,550	2,629	2,637	100

During 1979-81, fishermen employing otter trawls harvested 34 percent, by quantity, of the total Atlantic Canada catch of fish and shellfish; gill nets, 15 percent; seines, 11 percent; traps, 9 percent; and longlines, 9 percent.

Table 33 presents the number of fishermen in Atlantic Canada, by Provinces, from 1979 to 1983.

Table 33.--Number of fishermen in Atlantic Canada, by Provinces, 1979-83

Year	Nova Scotia	Newfoundland	New Brunswick	Prince Edward Island	Quebec	Total Atlantic Canada
1979	10,799	32,352	5,165	2,421	5,148	55,885
1980	11,432	35,080	5,753	2,657	4,330	59,252
1981	11,388	28,587	5,802	2,749	4,724	53,250
1982	10,965	27,379	5,697	3,103	4,500	51,554
1983	12,543	1/	6,466	3,182	1/	1/

1/ Not available.

Source: Compiled from official statistics of the Canadian Department of Fisheries and Oceans, Economic Policy Branch, Ottawa.

In 1982, there were 51,554 registered fishermen in the seafish fisheries of Atlantic Canada, down 8 percent from 55,885 in 1979. Newfoundland and Nova Scotia together account for the majority of fishermen in the groundfish fisheries, 60 and 20 percent of total Atlantic employment, respectively, and Nova Scotia accounts for 60 percent of the fishermen engaged in scallop harvesting.

Newfoundland accounted for 53 percent of the fishermen employed in Atlantic Canada in 1982; Nova Scotia, 21 percent; New Brunswick, 11 percent;

Quebec, 9 percent; and Prince Edward Island, 6 percent. These figures are not directly comparable, however, as they fail to distinguish between those for whom fishing is a principal source of income and those who fish on a part-time basis. Under the current system of fisherman licensing in Atlantic Canada, persons are categorized as either full time (those for whom fishing provides at least 75 percent of their income) or part-time. Prior to 1981, however, records were kept only classifying fishermen as full time, part time, or occasional. Moreover, these records have been kept by Provincial governments and are not consistent across Provinces regarding the criteria by which fishing employment is measured. In Nova Scotia, New Brunswick, and Prince Edward Island, fishermen have been classified in terms of the proportion of their total income earned by fishing, but in Newfoundland and Quebec, the criteria is time spent employed in fishing.

Table 34 presents harvesting employment by extent of employment in each Province during 1979-81.

Table 34.--Number of harvesting employees in Atlantic Canada, by Provinces and by types, 1979-81

Province	1979	1980	1981
<b>Nova Scotia:</b>			
Full-time	5,129	5,519	6,506
Part-time	1,656	1,723	1,593
Occasional	4,011	4,190	3,289
Total	10,799	11,432	11,388
<b>Newfoundland:</b>			
Full-time	866	879	1/
Part-time	5,890	7,637	1/
Occasional	25,596	26,564	1/
Total	32,352	35,080	28,587
<b>New Brunswick:</b>			
Full-time	1,781	2,012	2,405
Part-time	1,175	1,236	1,131
Occasional	2,209	2,505	2,266
Total	5,165	5,753	5,802
<b>Prince Edward Island:</b>			
Full-time	1,356	1,498	1,707
Part-time	547	625	547
Occasional	518	534	495
Total	2,421	2,657	2,749
<b>Quebec:</b>			
Full-time	1/	2,203	2,376
Part-time	1/	1,082	1,149
Occasional	1/	1,045	1,199
Total	5,148	4,330	4,724
<b>Grand total</b>	<b>55,885</b>	<b>59,252</b>	<b>53,250</b>

1/ Not available.

Source: Compiled from official statistics of the Canadian Department of Fisheries and Oceans.

The majority of registered fishermen in Atlantic Canada are employed on a part-time or occasional basis (80 percent in 1980) because of the seasonal nature of the inshore fishery, in which most part-time and occasional fishermen are employed. Differences among Provinces in the length of the fishing season are reflected in the distribution of fishermen among the three categories of employment. Newfoundland, a very rural region with hundreds of tiny, isolated fishing communities, consists primarily of occasional (inshore) fishermen who are restricted by weather and resource availability to fishing a small portion of the year. Nova Scotia is more urban and industrialized, is less affected by Arctic ice than Newfoundland, and has a much greater proportion of full-time fishermen in its ranks. Alternative job opportunities are more plentiful in Nova Scotia, and should fishing fail to return a sufficient income to fishermen, they are more likely to leave the fishery than Newfoundland fishermen, who will continue as fishermen even when fishing seasons are as little as 3 to 4 months in duration.

Another factor affecting the extent of employment in harvesting is the special status given fishermen by the Canadian Department of Employment and Immigration, which provides them with seasonal unemployment benefits during the offseason. These benefits are available during the period beginning the week in which November 1 falls and terminating the week in which the following May 15 falls. The main criterion for eligibility is 10 to 14 weeks, depending on the region, of insurable employment in fishing. This program is discussed in greater detail in the section on government assistance to the fishing industry. The likely effect of this program is to maintain employment in harvesting, as it reduces incentives to leave the industry when harvesting incomes are low.

### Landings

Canadian Atlantic coast landings of the groundfish covered in this report increased steadily from 1.2 billion pounds, valued at \$147 million, in 1979 to 1.5 billion pounds, valued at \$207 million, in 1982 before declining slightly to 1.4 billion pounds, valued at \$196 million, in 1983 (table 35). Cod was the primary species of groundfish caught, followed by flatfish, haddock, and pollock. Landings of Atlantic cod increased from 833 million pounds, valued at \$104 million, in 1979 to 1.1 billion pounds, valued at \$150 million, in 1983 (table 36). Cod accounted for 71 percent of the quantity and 73 percent of the value of total Atlantic Canada landings of the subject groundfish during 1979-83. Cod landings in Newfoundland, the leading Province, increased from 448 million pounds, valued at \$55 million, in 1979 to 645 million pounds, valued at \$80 million, in 1983, or by 44 percent in quantity and by 47 percent in value. Newfoundland accounted for 57 percent of the quantity and 53 percent of total Atlantic Canada cod landings during 1979-83. Nova Scotia was the second leading Province for cod landings, with such landings increasing from 235 million pounds, valued at \$33 million, in 1979 to 330 million pounds, valued at \$51 million, in 1983, or by 41 percent in quantity and by 55 percent in value. Nova Scotia cod landings accounted for 29 percent of the quantity and 33 percent of the value of the Atlantic Canada total during 1979-83. Lesser quantities of cod are landed in Quebec (84 million pounds in 1983), New Brunswick (34 million pounds), and Prince Edward Island (16 million pounds).

Table 35.--Groundfish and scallops: Atlantic Canada landings, by species, 1979-83

Species	1979	1980	1981	1982	1983 <sup>1/</sup>
Quantity (1,000 pounds; live weight)					
Cod-----	833,308	930,544	968,774	1,140,556	1,108,655
Haddock-----	76,277	119,627	125,713	102,299	87,082
Flatfish-----	242,917	231,234	232,235	206,494	170,802
Pollock-----	68,842	81,022	89,547	85,044	74,419
Total, ground- fish-----	1,221,344	1,362,425	1,416,270	1,534,395	1,440,957
Scallops-----	197,285	155,363	198,185	143,519	112,243
Grand total----	1,418,629	1,517,788	1,614,455	1,677,914	1,553,200
Value (1,000 U.S. dollars)					
Cod-----	103,525	122,189	135,799	156,646	149,922
Haddock-----	13,653	22,641	20,803	18,707	19,574
Flatfish-----	23,746	25,307	24,253	22,235	19,026
Pollock-----	5,962	7,860	9,033	9,255	7,034
Total, ground- fish-----	146,886	177,997	189,889	206,843	195,556
Scallops-----	63,557	58,578	83,080	49,069	56,943
Grand total----	210,443	236,575	272,968	255,912	252,499
Unit value (per pound)					
Cod-----	\$0.12	\$0.13	\$0.14	\$0.14	\$0.14
Haddock-----	.18	.19	.17	.18	.22
Flatfish-----	.10	.11	.10	.11	.11
Pollock-----	.09	.10	.07	.11	.09
Average, groundfish---	.12	.13	.13	.13	.14
Scallops-----	2.67	3.13	3.48	2.84	4.21
Average, ground: fish and scallops-----	.15	.16	.17	.15	.16

<sup>1/</sup> Preliminary.

Source: Canadian Fisheries Annual Statistical Review.

Note.--Because of rounding, figures may not add to the totals shown.

Table 36.--Cod: Atlantic Canada landings, by Provinces, 1979-83

Province	1979	1980	1981	1982	1983 <sup>1/</sup>
Quantity (1,000 pounds)					
Newfoundland	447,827	551,300	540,484	664,894	645,278
Nova Scotia	234,594	257,184	282,760	340,357	329,799
Quebec	81,273	84,385	99,725	91,619	83,609
New Brunswick	26,034	25,816	30,538	32,244	34,407
Prince Edward Island	13,580	11,859	15,267	11,442	15,562
<b>Total</b>	<b>833,308</b>	<b>930,544</b>	<b>968,744</b>	<b>1,140,556</b>	<b>1,108,655</b>
Value (1,000 U.S. dollars)					
Newfoundland	54,583	69,114	69,578	81,994	80,483
Nova Scotia	32,667	36,545	44,993	55,367	50,612
Quebec	11,383	12,057	15,478	13,513	11,992
New Brunswick	3,183	3,181	3,942	4,434	5,115
Prince Edward Island	1,710	1,292	1,807	1,338	1,719
<b>Total</b>	<b>103,525</b>	<b>122,189</b>	<b>135,799</b>	<b>156,646</b>	<b>149,922</b>
Unit value (cents per pound)					
Newfoundland	11	13	13	12	12
Nova Scotia	14	14	16	16	15
Quebec	14	14	16	15	14
New Brunswick	12	12	13	14	15
Prince Edward Island	13	11	12	12	11
<b>Average</b>	<b>12</b>	<b>13</b>	<b>14</b>	<b>14</b>	<b>14</b>

<sup>1/</sup> Preliminary.

Source: Canadian Fisheries Annual Statistical Review.

Note.--Because of rounding, figures may not add to the totals shown.

Landings of flatfish in Atlantic Canada decreased from 243 million pounds, valued at \$24 million, in 1979 to 171 million pounds, valued at \$19 million, in 1983, representing a 30-percent drop in quantity and a 20-percent decrease in value (table 37). Flatfish accounted for 16 percent of the quantity and 12 percent of the value of total Atlantic Canada landings of the subject groundfish during 1979-83. Flatfish landings in Newfoundland, the leading Atlantic Province for flatfish, fluctuated during 1979-83, ranging from 179 million pounds, valued at \$16 million, in 1979 to 115 million pounds, valued at \$12 million, in 1983 (table 37). During the period, Newfoundland accounted for 72 percent of the quantity and 66 percent of the value of total Atlantic Canada flatfish landings. Flatfish landings in Nova Scotia, the second leading Province for flatfish, also fluctuated during the period and ranged from 50 million pounds, valued at \$7 million, in

1980 to 38 million pounds, valued at \$5 million, in 1982. Such landings accounted for 19 percent of the quantity and 25 percent of the value of total Atlantic Canada flatfish landings during 1979-83. Following Nova Scotia were Prince Edward Island (5 million pounds in 1983), New Brunswick (4 million pounds), and Quebec (4 million pounds).

Table 37.--Flatfish: Atlantic Canada landings, by Provinces, 1979-83

Province	1979	1980	1981	1982	1983 <sup>1/</sup>
Quantity (1,000 pounds)					
Newfoundland-----	178,584	158,698	173,376	154,968	115,294
Nova Scotia-----	38,373	49,857	40,944	37,538	41,863
Prince Edward Island-----	5,483	6,680	6,762	5,529	5,320
New Brunswick-----	11,160	8,662	5,756	5,487	4,339
Quebec-----	9,317	7,337	5,397	2,972	3,986
Total-----	242,917	231,234	232,235	206,494	170,802
Value (1,000 U.S. dollars)					
Newfoundland-----	15,962	15,662	16,783	15,605	11,503
Nova Scotia-----	5,003	6,981	5,429	5,081	6,030
Prince Edward Island-----	611	751	737	616	632
New Brunswick-----	1,177	972	633	592	463
Quebec-----	992	940	671	341	399
Total-----	23,746	25,307	24,253	22,235	19,026
Unit value (cents per pound)					
Newfoundland-----	09	10	10	10	10
Nova Scotia-----	13	14	13	14	14
Prince Edward Island-----	10	11	11	11	12
New Brunswick-----	11	11	11	11	11
Quebec-----	11	13	12	11	10
Average-----	10	11	10	11	11

<sup>1/</sup> Preliminary.

Source: Canadian Fisheries Annual Statistical Review.

Note.--Because of rounding, figures may not add to the totals shown.

Haddock landings in Atlantic Canada during 1979-83 ranged from a low of 76 million pounds, valued at \$14 million, in 1979 to a high of 126 million pounds, valued at \$21 million, in 1981 (table 38). Haddock accounted for 7 percent of the quantity and 10 percent of the value of Atlantic Canada landings of the subject groundfish during 1979-83. Nearly all Atlantic <sup>81</sup> Canada haddock landings are in Nova Scotia, which accounted for 94 percent of

the quantity and 96 percent of the value of the Atlantic Canada total during 1979-83 (table 38). This is due mainly to the location of Canadian haddock stocks, most of which are in waters off Nova Scotia. Haddock landings in Nova Scotia increased substantially from 73 million pounds, valued at \$13 million, in 1979 to 113 million pounds, valued at \$22 million, in 1980; this resulted mainly from an increase in the catch quota in the latter year. Landings then decreased steadily to 85 million pounds, valued at \$19 million, in 1983. Newfoundland was the second leading Province for haddock landings, accounting for 5 percent of the quantity and 3 percent of the value of the total for Atlantic Canada during 1979-83. The remaining Provinces landed much smaller amounts of haddock during the period.

Table 38.--Haddock: Atlantic Canada landings, by Provinces, 1979-83

Province	1979	1980	1981	1982	1983 <sup>1/</sup>
Quantity (1,000 pounds)					
Nova Scotia-----	73,003	113,224	111,484	97,853	85,281
Newfoundland-----	2,723	5,236	13,430	3,973	1,574
New Brunswick-----	359	825	414	467	227
Prince Edward					
Island-----	190	340	381	4	0
Quebec-----	2	2	4	2	0
<b>Total-----</b>	<b>76,277</b>	<b>119,627</b>	<b>125,713</b>	<b>102,299</b>	<b>87,082</b>
Value (1,000 U.S. dollars)					
Nova Scotia-----	13,215	21,798	19,196	18,129	19,311
Newfoundland-----	317	614	1,485	476	204
New Brunswick-----	88	178	74	101	59
Prince Edward					
Island-----	32	51	48	1	-
Quebec-----	1	1/	1	1	-
<b>Total-----</b>	<b>13,653</b>	<b>22,641</b>	<b>20,803</b>	<b>18,707</b>	<b>19,574</b>
Unit value (cents per pound)					
Nova Scotia-----	18	19	17	19	23
Newfoundland-----	12	12	11	12	13
New Brunswick-----	25	22	18	22	26
Prince Edward					
Island-----	17	15	13	25	-
Quebec-----	50	1/	25	50	-
<b>Average-----</b>	<b>18</b>	<b>19</b>	<b>17</b>	<b>18</b>	<b>22</b>

<sup>1/</sup> Preliminary.

Source: Canadian Fisheries Annual Statistical Review.

Note.--Because of rounding, figures may not add to the totals shown.

Pollock landings in Atlantic Canada ranged from a low of 69 million pounds, valued at \$6 million, in 1979 to a high of 90 million pounds, valued at \$9 million, in 1981 (table 39). Such landings accounted for 6 percent of the quantity and 4 percent of the value of total Atlantic Canada landings of the subject groundfish during 1979-83. Nova Scotia is the principal Province for pollock landings in Atlantic Canada. Nova Scotia pollock landings increased from 65 million pounds, valued at \$6 million, in 1979 to 84 million pounds, valued at \$9 million, in 1981 and then declined to 71 million pounds, valued at \$7 million, in 1983. Such landings accounted for 94 percent of the quantity and value of the Atlantic Canada total during 1979-83. Smaller quantities of pollock are also landed in Newfoundland (2 million pounds in 1983) and New Brunswick (1 million pounds), but pollock landings in Quebec and Prince Edward Island were negligible during 1979-83.

Atlantic Canada landings of scallops decreased irregularly from 24 million pounds, valued at \$64 million, in 1979 to 14 million pounds, valued at \$57 million, in 1983 (table 40). Nova Scotia was by far the principal Province and set the trend in such landings. Scallop landings in Nova Scotia decreased irregularly from 23 million pounds, valued at \$61 million, in 1979 to 12 million pounds, valued at \$49 million, in 1983 (table 40). Such landings accounted for 92 percent of the quantity and 91 percent of the value of the Atlantic Canada total during 1979-83. The overall decrease in scallop landings was caused by the decline in scallop stocks on Georges Bank, the principal scallop-harvesting area for Atlantic Canada.

Groundfish and scallop landings in Atlantic Canada, as in New England, are seasonal. Seasonality is generally more pronounced in Atlantic Canada owing to more severe and lengthy weather conditions, particularly with respect to ice, and to a greater degree of migration of fish stocks, particularly from inshore to offshore areas.

Table 41 shows Atlantic Canada monthly groundfish and scallop landings in 1983. Cod landings ranged from 182.7 million pounds in June to 34.1 million in December, a difference of 81 percent between the high and low months. Flatfish landings ranged from 25.9 million pounds in June to 4.7 million pounds in February, a difference of 82 percent. Landings of haddock varied from 11.0 million pounds in April to 2.3 million pounds in December, a difference of 79 percent. Pollock landings varied from 13.2 million pounds in July to 1.2 million pounds in November, a difference of 91 percent. Scallop landings ranged from 2.3 million pounds in May to 172,000 pounds in December, a difference of 93 percent.

As in the New England region of the United States, the value of Atlantic Canada groundfish landings generally is less seasonally affected than is the quantity. However, the value of Atlantic Canada landings are more seasonal than New England landings, since prices of the bulk of Atlantic Canada landings are fixed by contract, thus tying aggregate values more directly to seasonal fluctuations in the quantity. The value of Atlantic Canada cod landings in 1983 ranged from \$26.4 million in July to \$4.4 million in December, a difference of 83 percent (actually higher than the 81-percent difference in quantity). Flatfish landings ranged from \$2.9 million in June to \$510,000 in February, a variation of 83 percent (compared with 82 percent for the quantity). Haddock landings ranged from \$2.5 million in July to

Table 39.--Pollock: Atlantic Canada landings, by Provinces, 1979-83

Province	1979	1980	1981	1982	1983 <sup>1/</sup>
Quantity (1,000 pounds)					
Nova Scotia-----	64,551	74,412	84,445	79,352	70,662
Newfoundland-----	1,984	2,227	2,295	2,346	2,381
New Brunswick-----	2,116	3,942	2,465	3,344	1,305
Quebec-----	15	4	<u>2/</u>	0	71
Prince Edward					
Island-----	176	437	342	2	0
Total-----	68,842	81,022	89,547	85,044	74,419
Value (1,000 U.S. dollars)					
Nova Scotia-----	5,628	7,179	8,539	8,610	6,709
Newfoundland-----	112	118	143	146	146
New Brunswick-----	208	531	328	499	174
Quebec-----	1	<u>3/</u>	<u>3/</u>	-	5
Prince Edward					
Island-----	13	32	23	<u>3/</u>	-
Total-----	5,962	7,860	9,033	9,255	7,034
Unit value (cents per pound)					
Nova Scotia-----	09	10	10	11	09
Newfoundland-----	06	05	06	06	06
New Brunswick-----	10	13	13	15	13
Quebec-----	07	<u>4/</u>	<u>4/</u>	-	07
Prince Edward					
Island-----	07	07	07	<u>4/</u>	-
Average-----	09	10	07	11	09

<sup>1/</sup> Preliminary.

<sup>2/</sup> Less than 500 pounds.

<sup>3/</sup> Less than \$500.

<sup>4/</sup> Not available.

Source: Canadian Fisheries Annual Statistical Review.

Note.--Because of rounding, figures may not add to the totals shown.

Table 40.--Scallops: Atlantic Canada landings, by Provinces, 1979-83

Province	1979	1980	1981	1982	1983 <u>1/</u>
Quantity (1,000 pounds)					
Nova Scotia-----	22,836	17,357	21,240	15,834	11,702
New Brunswick-----	288	553	1,537	888	1,024
Prince Edward					
Island-----	253	216	379	306	418
Quebec-----	230	276	247	93	199
Newfoundland-----	161	318	475	170	180
Total-----	23,769	18,718	23,878	17,291	13,523
Value (1,000 U.S. dollars)					
Nova Scotia-----	61,129	54,508	73,681	44,665	48,928
New Brunswick-----	819	1,923	5,880	2,643	4,732
Prince Edward					
Island-----	697	694	1,411	841	1,820
Quebec-----	542	624	839	254	766
Newfoundland-----	370	829	1,268	667	697
Total-----	63,557	58,578	83,080	49,069	56,943
Unit value (dollars per pound)					
Nova Scotia-----	2.57	3.14	3.47	2.82	4.18
New Brunswick-----	2.84	3.48	3.83	2.98	4.62
Prince Edward					
Island-----	2.75	3.21	3.72	2.75	4.35
Quebec-----	2.36	2.26	3.40	2.73	3.85
Newfoundland-----	2.30	2.61	2.67	3.92	3.87
Average-----	2.67	3.13	3.48	2.84	4.21

1/ Preliminary.

Source: Canadian Fisheries Annual Statistical Review.

Note.--Because of rounding, figures may not add to the totals shown.

Table 41.--Groundfish and scallops: Atlantic Canada monthly landings, by species and by months, 1983 1/

Species	January	February	March	April	May	June	July	August	September	October	November	December
	Quantity (1,000 pounds)											
Cod	48,221	81,189	76,608	73,237	133,912	182,664	156,198	95,408	112,957	60,505	53,631	34,125
Haddock	5,018	7,141	6,087	10,957	9,502	10,229	8,896	7,923	10,408	6,206	2,388	2,328
Flatfish	6,746	4,638	4,755	8,944	18,990	25,886	18,003	20,232	21,475	16,982	13,281	10,849
Pollock	3,750	2,866	2,835	5,254	11,444	11,080	13,223	9,226	7,445	3,406	1,208	2,681
Scallops	321	445	700	1,085	2,325	1,863	1,786	1,601	1,434	1,239	551	172
	Value (1,000 dollars)											
Cod	5,759	10,206	10,075	9,197	18,724	25,145	26,427	12,870	16,059	9,139	6,865	4,441
Haddock	1,067	1,465	1,233	2,320	1,975	2,267	2,541	1,417	2,531	1,521	570	665
Flatfish	724	510	518	981	2,162	2,944	2,074	2,220	2,395	1,980	1,429	1,089
Pollock	288	248	226	554	1,077	1,044	1,228	877	721	338	130	303
Scallops	1,245	1,741	2,709	4,191	8,694	7,239	7,541	7,268	6,794	6,323	2,324	876
	Unit value (per pound)											
Cod	\$0.12	\$0.13	\$0.13	\$0.13	\$0.14	\$0.14	\$0.17	\$0.13	\$0.14	\$0.15	\$0.13	\$0.13
Haddock	.21	.21	.20	.21	.21	.22	.29	.18	.24	.25	.24	.28
Flatfish	.11	.11	.11	.11	.15	.11	.12	.11	.11	.12	.11	.10
Pollock	.08	.09	.08	.11	.09	.09	.09	.10	.10	.10	.11	.11
Scallops	3.88	3.91	3.87	3.86	3.74	3.89	4.22	4.54	4.74	5.10	4.22	5.09

1/ Preliminary.

Source: Compiled from official statistics of the Department of Fisheries and Oceans, Ottawa.

\$570,000 in November, a difference of 78 percent (compared with 79 percent for the quantity). Pollock landings ranged from \$1.2 million in July to \$130,000 in November, a difference of 89 percent (compared with 91 percent for the quantity). Scallop landings ranged from \$8.7 million in May to \$876,000 in December, a difference of 90 percent (compared with 93 percent for the quantity).

### Costs

In an annual survey of Nova Scotia fishing vessels conducted by the Nova Scotia Department of Fisheries, vessel operations are examined for a variety of gear types and geographic regions within the Provincial inshore and nearshore fisheries. (Data on large, offshore trawlers have not been available from these surveys since 1978. This is an important omission given the importance of these vessels in the Atlantic Canada groundfish and scallop industry.) Three vessel categories engaged in harvesting groundfish and scallops are relevant to this study: 45-foot Southwest Nova Scotia groundfish druggers; 60-foot Southwest Nova Scotia groundfish druggers; and 106-foot Southwest Nova Scotia scallop druggers. In all three categories, samples of between three and seven vessels were taken, and vessel averages only were provided.

Costs involved in operating these vessels are presented in table 42, covering principal costs during the years 1981 and 1982 (the only years for which complete data exist). These costs include labor (crew share), fuel, interest, maintenance and repair, and insurance and are expressed as a share of gross revenues and on the basis of per unit of output (per pound of catch).

Briefly, the distribution of costs are as follows. Labor is the major cost component of all three vessel types, accounting for 36 to 45 percent of gross revenues for the 45-foot groundfish dragger during 1981 and 1982, 36 to 39 percent for the 60-foot groundfish dragger, and 45 to 52 percent for the scallop vessel. For these three vessel types, fuel accounted for 12 to 18 percent, 12 to 17 percent, and 9 to 19 percent, respectively, of gross revenues; interest, 13 to 37 percent, 15 percent, and 5 to 6 percent, respectively; maintenance and repair, 7 to 22 percent, 13 to 15 percent, and 16 to 22 percent, respectively; and finally, insurance accounted for 2 to 6 percent, 3 percent, and 1 to 2 percent, respectively, of gross revenues for the three vessel classes.

### Productivity

Using data for the same vessels described in the previous section, two measures of physical productivity--catch per day fished (CPDF), and catch per man-day fished (CPMDF)--are presented in table 43. The CPDF was higher for the larger groundfish dragger than for the smaller vessel. The CPDF in 1981 was 15,325 pounds for the 60-foot vessel and 6,473 pounds for the smaller one. In 1982, the CPDF for the larger vessel fell by 29 percent to 10,942 pounds and for the smaller vessel rose by 10 percent to 7,133 pounds.

Table 42.--Selected costs of groundfish and scallop vessels in Nova Scotia, by size classes, 1981 and 1982

Cost	1981		1982	
	Share of gross revenue Percent	Per pound of landings	Share of gross revenue Percent	Per pound of landings
45-foot dragger:				
Labor-----	36.2	\$0.064	44.6	\$0.108
Fuel-----	18.4	.033	12.2	.029
Interest-----	37.4	.066	12.7	.031
Maintenance and repair-----	22.0	.039	7.4	.018
Insurance-----	5.5	.010	2.2	.006
60-foot dragger:				
Labor-----	38.9	\$0.078	36.4	\$0.083
Fuel-----	12.2	.024	16.7	.038
Interest-----	14.6	.029	14.5	.033
Maintenance and repair-----	14.6	.029	13.2	.030
Insurance-----	3.0	.006	3.3	.007
106-foot dragger:				
Labor-----	51.5	\$1.763	45.1	\$1.245
Fuel-----	9.4	.321	18.6	.513
Interest-----	4.7	.160	6.0	.165
Maintenance and repair-----	16.2	.555	21.7	.599
Insurance-----	1.3	.045	2.2	.062

Source: Costs and Earnings of Selected Fishing Enterprises, Nova Scotia, 1981 and 1982.

Table 43.--Measures of productivity for selected Atlantic Canada fishing vessels, by size classes, 1981 and 1982

Measure	1981	1982
<b>45-foot groundfish dragger</b>		
Return on sales <u>1</u> /-----percent---	<u>2</u> /	11.5
Return on investment <u>3</u> /-----do-----	<u>2</u> /	6.9
Net income or (loss) <u>4</u> /---(US dollars)---	(18,786)	15,608
Sales-----do-----	56,175	135,338
Landings-----pounds---	317,170	599,157
Catch per day fished <u>5</u> /-----do-----	6,473	7,133
Catch per man-day fished <u>6</u> /-----do-----	1,961	1,877
<b>60-foot groundfish dragger</b>		
Return on sales <u>1</u> /-----percent---	<u>2</u> /	8.1
Return on investment <u>3</u> /-----do-----	<u>2</u> /	4.1
Net income or (loss) <u>4</u> /---(US dollars)---	(20,036)	13,990
Sales-----do-----	183,725	171,674
Landings-----pounds---	919,475	755,001
Catch per day fished <u>5</u> /-----do-----	15,325	10,942
Catch per man-day fished <u>6</u> /-----do-----	4,033	2,669
<b>106-foot scallop dragger</b>		
Return on sales <u>1</u> /-----percent---	11.8	<u>2</u> /
Return on investment <u>3</u> /-----do-----	13.5	<u>2</u> /
Net income or loss <u>4</u> /---(US dollars)---	105,278	(10,775)
Sales-----do-----	894,431	572,803
Landings-----pounds---	261,266	207,598
Catch per day fished <u>5</u> /-----do-----	2,107	1,549
Catch per man-day fished <u>6</u> /-----do-----	125	97

1/ Net income/sales.

2/ Not available.

3/ Net income/total capital investment in 1981 (less subsidies).

4/ Net income before depreciation and taxes.

5/ Landings/days fished.

6/ Landings/(days fishedxcrew size).

Source: Costs and Earnings of Selected Fishing Enterprises, Nova Scotia, 1981 and 82.

The CPMDF was higher for the larger groundfish dragger, as increasing capital increased labor productivity. Pounds harvested per crewmember per day for the 60-foot dragger totaled 4,033 in 1981 and 2,669 in 1982, but for the 45-foot dragger, the CPMDF was only 1,961 pounds in 1981 and 1,877 pounds in 1982.

The CPDF for the scallop dragger was 2,107 pounds in 1981, falling to 1,549 pounds in 1982. This decrease in productivity explains the poor profit position of this vessel class in 1982. Labor productivity, as measured by the CPMDP, also fell, from 125 pounds in 1981 to 97 pounds in 1982.

### Profit and loss

Again using the same vessels as in the previous sections, net income is presented in table 43. In both samples of groundfish draggers, the 45-foot and 60-foot size classes, the "average" vessel lost money in 1981 and turned a profit in 1982. The 45-foot dragger lost US\$18,786 on sales of \$56,175 in 1981, and the 60-foot dragger lost \$20,036 on sales of \$183,725 the same year. In 1982, with landings from the 45-foot boat rising by more than 100 percent over those in 1981, from 317,170 to 599,157 pounds, sales rose by 141 percent to \$135,338, and net income climbed to \$15,608, representing an 11.5-percent return on sales. For the 60-foot dragger, 1982 sales fell by 6.6 percent to \$171,674 in response to an 18-percent drop in landings to 755,001 pounds, but net income rose to \$13,990, representing an 8.1-percent return on sales.

For the "typical" 106-foot scallop dragger, net income in 1981 was \$105,278 on sales of \$894,431, representing an 11.8-percent return on sales. Harvests totaled 261,266 pounds of scallop meats. In 1982, however, with landings down 21 percent to 207,598 pounds, sales fell by 36 percent to 572,803. Net income was negative, down to -\$10,775.

### Processing Sector

The fish-processing sector of the Atlantic Canada fishing industry, comprising some 290 establishments and 22,000 employees, produced 1.20 billion U.S. dollars' worth of fish products in 1982, of which \$450 million constituted products made from subject groundfish and scallops.

The processing sector of the industry is as diverse in scale and distribution as is the harvesting sector. As in the Northeastern United States, the processing of groundfish is exclusively an onshore activity--in fact, so-called factory-freezer-tractors are banned from Atlantic Canada fisheries, largely because they take away from onshore processing employment. The scale of operations of the hundreds of fish plants in the region ranges from tiny, family-operated, backyard businesses operating only a few months of the year to huge, 1,000-employee plants operating yearround.

Two important distinctions between the fish-processing sectors of Atlantic Canada and the Northeastern United States are the higher degrees of horizontal and vertical integration found in Atlantic Canada. The processing sector of Atlantic Canada has historically been dominated by four or five very large, vertically integrated companies. Concentration of groundfish-processing activities by these firms vis-a-vis the industry as a whole has been high; in a 1981 study on market structure and performance of the

industry, <sup>1/</sup> it was estimated that in 1978, not an atypical year, the top four firms together accounted for about three-quarters of the quantity of Atlantic Canada production of frozen groundfish fillets and groundfish blocks, the principal product forms produced in the region. The top eight firms together accounted for 85 percent of frozen fillet production and 89 percent of block production. Concentration is believed to be much less for the production of fresh groundfish fillets. This degree of concentration did not change appreciably until a 1983 "restructuring" of the larger processors (discussed below), merging all production by the eight largest processing firms into the hands of two "supercompanies."

Because of the capacity of the large plants operated by the major processing firms and the fixed costs associated with operating these relatively capital-intensive enterprises, flow-through of raw product must be maintained sufficiently high in order that average unit costs of output are low. This requires a yearround, fresh, whole-fish supply, which means the large plants must be fed by large, offshore trawlers capable of yearround operation and relatively distant traveling to fish resources. Such large vessels, often 200 to 500 gross tons, are very expensive, priced well above the financing available to independent fishermen. For these reasons, the fleet of offshore trawlers in Atlantic Canada that are 100 tons or greater in size is owned and operated almost exclusively by the large processors. (In 1981, there were 354 vessels 100 tons or larger in Atlantic Canada.)

Vessels 100 tons or larger typically harvest 50 percent or more of the Atlantic Canadian groundfish catch, allowing the large processors to supply themselves with most of their raw-material needs and purchase the remainder from independent vessels and small processors. Consequently, fluctuations in demand and/or inventories of the large processors' products will be reflected less in fluctuations in the utilization of their own trawlers and more in the purchases of fish from other sources, allowing for greater control over fixed and variable costs by maintaining utilization of company-owned capital (trawlers).

The smaller processing operations are supported principally by the increased supply of fish landed by inshore fishermen in the warmer months of the year. Many of these processing plants are labor intensive, employing family members, and without a great amount of capital, such as freezing and filleting machines or block-pressing equipment. These plants either handle much of Atlantic Canada's fresh groundfish production (whole and filleted fish) (as do plants in Southwest Nova Scotia) or they sell fresh or sometimes frozen, semiprocessed fish to the larger firms that finish the processing and have the necessary market channels to handle such high volumes of product. The small processors are more flexible in terms of shutting down when fish supplies are low, as they are less capitalized (generally older, fully depreciated capital) and have less overhead.

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<sup>1/</sup> Marvin Shaffer and Associates, Ltd., Structure, Behavior and Performance of the Atlantic Groundfish Industry With Special Reference to the Quality Improvement Program, Ottawa, June 1981.

Number of plants and employment

Table 44 presents the number of establishments and employment in the Atlantic Canada fish-processing sector during 1979-82.

Table 44.--Number of establishments and employment in the Atlantic Canada fish-processing sector, by Provinces, 1979-82

Province	1979	1980	1981	1982
Newfoundland:				
Establishments-----	1/	83	84	80
Employment-----	9,807	8,933	9,415	8,470
Nova Scotia:				
Establishments-----	1/	95	92	91
Employment-----	6,126	6,675	6,487	6,693
New Brunswick:				
Establishments-----	1/	59	59	62
Employment-----	3,925	3,730	3,623	3,908
Quebec:				
Establishments-----	1/	34	36	41
Employment-----	1,848	1,740	1,885	1,859
Prince Edward Island:				
Establishments-----	1/	21	19	16
Employment-----	739	831	758	674
Atlantic Canada:				
Establishments-----	1/	292	290	290
Employment-----	22,445	21,909	22,926	21,604

1/ Not available.

Source: Compiled from official data of the Canadian Department of Fisheries and Oceans.

In 1982, some 21,604 persons were employed in fish processing in Atlantic Canada, down 6 percent from 22,926 in 1981 and down 4 percent from 22,445 in 1979. Newfoundland and Nova Scotia together accounted for 70 percent of total Atlantic Canada fish-processing employment in 1982. Employment in Newfoundland declined by 14 percent during 1979-82; employment in Nova Scotia rose by 9 percent during the period. New Brunswick, Quebec, and Prince Edward Island together accounted for the remaining 30 percent of Atlantic Canada fish-processing employment in 1982.

The number of processing establishments in the Atlantic Provinces appears to have been stable during 1979-82, ranging between 290 and 292 plants. It should be noted that these data, which are published by Statistics Canada, a Federal agency, differ widely from a 1979 estimate by a private consultant to the Canadian Department of Fisheries and Oceans, which estimated the number of Atlantic Canada processing plants in 1979 at 594, of which 414 alone produced

fresh and frozen fish products. <sup>1/</sup> This discrepancy probably lies in the omission from the official statistics of some very small, seasonal operations which are found scattered along the coasts of each Atlantic Province.

### Technology

Although there exist some huge processing plants in the Atlantic Provinces, with heavy capitalization, the actual cutting of groundfish into fillets--a basic step in production of blocks as well as fresh and frozen fillets--is usually a labor-intensive activity in these plants, as well as in smaller operations. As in the Northeastern United States, many, if not most, of the plants of medium-to-large size have automatic filleting machines. These are often kept idle in favor of manual cutting. There are several possible reasons for this: although, according to field interviews, filleting machines can be more efficient than a worker of average skills, some plant employment may be highly skilled enough to make abandonment of the machines worthwhile. The machines require high utilization rates to be operated efficiently, and flow-through of product in the plant may be too variable to profitably use the machines. Plant labor union contracts, at least in Newfoundland, often specify that second-shift workers employed during any time in a month are to be guaranteed work (or pay in lieu thereof) for the remainder of the month, putting the company in a position where it might just as well put workers on the cutting lines if it has to pay them anyway.

Such automation is rare in small-scale processing, which is a very labor-intensive operation. This allows the flexibility in both product/species type and level of production required to efficiently handle the large fluctuation in landings of inshore fish. Although per unit operating costs may be higher, capital and overhead costs are low compared with those of the larger plants.

### Production

As noted earlier, emphasis in Atlantic Canada processing is placed on frozen groundfish production. This has historically developed as a result of a number of factors. Until fairly recent developments in air freight of fresh fish, long-distance transport of fish created delays between processing and marketing to the final consumer. As the United States has been the traditional market for much of the region's fresh and frozen groundfish products, the only way to market fresh fish was to ship it "over the road" into the nearby Northeastern United States, which was already largely the domain of the domestic industry. Hence, the large frozen market in the Northeastern United States, as well as in other regions, has been the focus of Canadian producers. Fresh groundfish production does exist, but it is a minor part of total output.

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<sup>1/</sup> Marvin Shaffer and Associates, op. cit.

The principal groundfish products of the industry are frozen fillets and blocks; fresh, whole, and filleted fish; and frozen, whole fish. The bulk of these products are marketed in the U.S. market. According to information obtained during field interviews, production of frozen groundfish is carried out mostly by larger plants, and fresh production is undertaken in varying amounts by plants of all sizes. Because of geographic proximity to U.S. markets, producers in Nova Scotia and New Brunswick marketed a higher proportion of their output as fresh, compared with that marketed as fresh in Newfoundland.

Different sized plants generally pack for different customers. The largest plants, operated by multinational integrated firms, pack for the firm's advertised brand. Smaller, independent plants pack for the generic tray-pack market; for private labels, such as supermarkets; or if they are large enough, they many have their own label. Many of the smallest plants simply rely on the larger firms to market their product for them.

Production of groundfish products can be erratic, as it is heavily influenced by availability of raw material. Recent Government management plans, which allocate quotas of fish to the integrated processors by enterprise in an attempt to stabilize supplies, are discussed later in the report.

Atlantic Canada production of whole groundfish increased from 27 million pounds, valued at \$9 million, in 1979 to 56 million pounds, valued at \$20 million, in 1982 (table 45). The bulk of such production was accounted for by cod. Such production represents principally whole fish that is not further processed in plants. Most of this production is believed to be exported to the Northeastern United States to fillet processors; a smaller amount is marketed as whole, drawn fish.

Atlantic Canada production of fresh fillets of the subject groundfish decreased from 22 million pounds, valued at \$25 million, in 1979 to 14 million pounds, valued at \$16 million, in 1980 and then rose to 19 million pounds, valued at \$23 million, in 1982, the latest year for which data are available (table 46). Cod was the principal species for such production, with Atlantic Canada fresh cod fillet production decreasing from 13 million pounds, valued at \$13 million, in 1979 to 8 million pounds, valued at \$7 million, in 1980 before rising to 10 million pounds, valued at \$11 million, in 1982. During 1979-82, cod accounted for 55 percent of the quantity and 51 percent of the value of total Atlantic Canada production of the fresh groundfish fillets of concern in this study.

Haddock was the next most important species processed, with production of fresh haddock fillets in Atlantic Canada ranging from 4 million pounds, valued at \$5 million, in 1981 to 5 million pounds, valued at \$7 million, in 1982 (table 46). During the period, haddock accounted for 29 percent of the quantity and 32 percent of the value of total Atlantic Canada production of the subject fresh groundfish fillets.

During 1979-82, Atlantic Canada production of fresh flatfish fillets ranged from 1 million pounds, valued at \$2 million, in 1980 to 3 million pounds, valued at \$4 million, in 1979 and accounted for 12 percent of the quantity and 15 percent of the value of total Atlantic Canada production of the fresh groundfish fillets under review (table 46). During the same period,

Table 45.--Whole groundfish: Atlantic Canada fresh and frozen production, by species, 1979-83

Species	1979	1980	1981 <u>1/</u>	1982 <u>1/</u>
Quantity (1,000 pounds, product weight)				
<b>Fresh:</b>				
Cod-----	12,211	21,433	25,569	27,774
Haddock-----	2,862	5,002	10,635	10,838
Flatfish-----	2,403	3,759	2,258	2,606
Pollock-----	1,005	<u>2/</u>	<u>2/</u>	<u>2/</u>
<b>Total-----</b>	<b>18,481</b>	<b>30,194</b>	<b>38,461</b>	<b>41,217</b>
<b>Frozen:</b>				
Cod-----	7,674	10,450	16,382	13,702
Haddock-----	165	<u>2/</u>	351	<u>2/</u>
Flatfish-----	110	238	1,019	946
Pollock-----	397	229	392	<u>2/</u>
<b>Total-----</b>	<b>8,347</b>	<b>10,917</b>	<b>18,144</b>	<b>14,647</b>
Value (1,000 dollars)				
<b>Fresh:</b>				
Cod-----	3,832	6,077	6,428	8,427
Haddock-----	924	1,842	3,283	3,683
Flatfish-----	464	786	455	585
Pollock-----	172	466	<u>2/</u>	<u>2/</u>
<b>Total-----</b>	<b>5,392</b>	<b>9,171</b>	<b>10,166</b>	<b>12,695</b>
<b>Frozen:</b>				
Cod-----	3,784	4,143	8,058	7,199
Haddock-----	82	<u>2/</u>	205	<u>2/</u>
Flatfish-----	59	96	370	415
Pollock-----	155	97	163	<u>2/</u>
<b>Total-----</b>	<b>4,080</b>	<b>4,335</b>	<b>8,796</b>	<b>7,614</b>

1/ Preliminary.

2/ Data not disclosed to maintain confidentiality.

Source: Canadian Fisheries Annual Statistical Review.

Note.--Because of rounding, figures may not add to the totals shown.

Table 46.--Fresh groundfish fillets: Atlantic Canada production, by species, 1979-82

Species	1979	1980	1981 <sup>1/</sup>	1982 <sup>1/</sup>
Quantity (1,000 pounds)				
Cod-----	12,959	7,577	7,910	10,121
Haddock-----	5,452	5,161	4,074	5,317
Flatfish-----	2,888	1,318	1,539	2,460
Pollock-----	551	2/	1,166	1,349
Total-----	21,850	14,057	14,689	19,248
Value (1,000 dollars)				
Cod-----	13,399	7,283	9,033	10,626
Haddock-----	6,724	6,426	4,781	7,350
Flatfish-----	4,476	1,829	1,935	3,618
Pollock-----	405	2/	842	965
Total-----	25,003	15,538	16,591	22,559
Unit value (per pound)				
Cod-----	\$1.03	\$0.96	\$1.14	\$1.05
Haddock-----	1.23	1.25	1.17	1.38
Flatfish-----	1.55	1.39	1.26	1.47
Pollock-----	.74	2/	.72	.72
Average-----	1.14	1.11	1.13	1.17

<sup>1/</sup> Preliminary.

<sup>2/</sup> Data not disclosed to maintain confidentiality.

Source: Canadian Fisheries Annual Statistical Review..

Note.--Because of rounding, figures may not add to the totals shown.

fresh pollock fillet production ranged from 551,000 pounds, valued at \$405,000, in 1979 to 1 million pounds, valued at \$1 million, in 1982 and accounted for a minor portion of the total Atlantic Canada production of the subject fillets (table 46).

Atlantic Canada production of the frozen groundfish fillets of concern in this study is much greater in magnitude than that of fresh fillets and is the principal groundfish product form produced in Atlantic Canada. Total production of the subject frozen groundfish fillets in Atlantic Canada increased from 132 million pounds, valued at \$146 million, in 1979 to 175 million pounds, valued at \$197 million, in 1982, or by 32 percent in quantity and by 35 percent in value (table 47). Again, cod was the principal species, with Atlantic Canada production of frozen cod fillets rising from 64 million pounds, valued at \$62 million, in 1979 to 122 million pounds, valued at \$131 million, in 1982, or by 89 percent in quantity and 110 percent in value. During the period, such production accounted for 56 percent of the quantity and 53 percent of the value of total Atlantic Canada production of the frozen groundfish fillets of concern in this study.

Production of frozen flatfish fillets in Atlantic Canada ranged in quantity from 42 million pounds in 1982 to 45 million pounds in 1981 (table 47). The value decreased steadily from \$61 million in 1979 to \$57 million in 1982. Flatfish accounted for 29 percent of the quantity and 35 percent of the value of total Atlantic Canada production of the subject groundfish fillets.

Frozen haddock fillet production in Atlantic Canada ranged from 14 million pounds, valued at \$15 million, in 1979 to 20 million pounds, valued at \$23 million, in 1980 (table 47). During 1979-82, haddock accounted for 9 percent of both the quantity and value of total production of the subject frozen groundfish fillets in Atlantic Canada.

Atlantic Canada production of frozen pollock fillets ranged from 11 million pounds, valued at \$8 million, in 1979 to 14 million pounds, valued at \$10 million, in 1981 (table 47). During the period under review, pollock accounted for 6 percent of the quantity and 4 percent of the value of the subject frozen groundfish fillet production in Atlantic Canada.

Table 47.--Frozen groundfish fillets: Atlantic Canada production, by species, 1979-82

Species	1979	1980	1981 <sup>1/</sup>	1982 <sup>1/</sup>
Quantity (1,000 pounds)				
Cod-----	64,240	62,306	86,030	121,526
Flatfish-----	43,309	44,601	44,800	41,863
Haddock-----	13,962	20,068	17,280	2/
Pollock-----	10,889	2/	13,508	11,193
Total-----	132,399	126,976	161,617	174,582
Value (1,000 dollars)				
Cod-----	62,246	64,418	98,372	130,796
Flatfish-----	60,800	59,911	58,288	57,384
Haddock-----	15,420	23,287	19,890	2/
Pollock-----	7,798	2/	10,081	8,567
Total-----	146,264	147,616	186,631	196,747
Unit value (per pound)				
Cod-----	\$0.97	\$1.03	\$1.14	\$1.08
Flatfish-----	1.40	1.34	1.30	1.37
Haddock-----	1.10	1.16	1.15	2/
Pollock-----	.72	2/	.75	.77
Average-----	1.10	1.16	1.15	1.13

<sup>1/</sup> Preliminary.

<sup>2/</sup> Data withheld to maintain confidentiality.

Source: Canadian Fisheries Annual Statistical Review.

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Note.--Because of rounding, figures may not add to the totals shown.

Atlantic Canada production of groundfish blocks showed no discernable trend during 1979-82, ranging from 130 million pounds, valued at \$111 million, in 1979 to 137 million pounds, valued at \$124 million, in 1980 (table 48). Cod, by far, is the principal groundfish species processed, with Atlantic Canada production of frozen cod blocks increasing irregularly from 109 million pounds, valued at \$93 million, in 1979 to 111 million pounds, valued at \$98 million, in 1982. Cod accounted for 82 percent of the quantity and value of total Atlantic Canada production of the subject groundfish blocks during 1979-82.

For the remaining species, Atlantic Canada production of flatfish blocks decreased steadily from 11 million pounds, valued at \$12 million, in 1979 to 7 million pounds, valued at \$7 million, in 1982 (table 48). Pollock block production increased from 6 million pounds, valued at \$3 million, in 1979 to 8 million pounds, valued at \$5 million, in 1982, and haddock block production rose sharply from 4 million pounds, valued at \$4 million, in 1979 to 9 million pounds, valued at \$9 million, in 1980 before returning to 4 million pounds, valued at \$4 million, in 1982 (table 48). The production of groundfish blocks in Atlantic Canada generally tracks the levels of landings of the species from which they are produced.

Table 48.--Groundfish blocks: Atlantic Canada production, by species, 1979-83

Species	1979	1980	1981 <u>1/</u>	1982 <u>1/</u>
Quantity (1,000 pounds)				
Cod-----	109,048	110,470	99,039	111,445
Flatfish-----	11,151	9,698	8,578	7,363
Pollock-----	5,944	7,732	7,727	8,325
Haddock-----	3,982	9,325	8,810	3,737
Total-----	130,124	137,225	124,154	130,869
Value (1,000 dollars)				
Cod-----	92,868	98,893	84,565	97,654
Flatfish-----	11,618	10,875	7,609	6,896
Pollock-----	3,179	4,759	5,363	5,163
Haddock-----	3,821	9,482	7,562	3,960
Total-----	111,485	124,009	105,099	113,674
Unit value (per pound)				
Cod-----	\$0.85	\$0.90	\$0.85	\$0.88
Flatfish-----	1.04	1.12	.89	.94
Pollock-----	.53	.62	.69	.62
Haddock-----	.96	1.02	.86	1.06
Average-----	.86	.90	.85	.87

1/ Preliminary.

Source: Canadian Fisheries Annual Statistical Review.

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Note.--Because of rounding, figures may not add to the totals shown.

### Financial experience of Canadian processors

Data on the financial condition of the Atlantic Canada processing industry are available for the years 1977-81 from a survey conducted in connection with a Federal task force study of Atlantic Canada fisheries. <sup>1/</sup> This assessment of the processing sector included an audit of 99 processing enterprises which, with 1981 sales of \$784 million (U.S.), represented 80 percent by sales value of the processing industry.

As a group, the sample made total sales of \$465 million in 1977, rising to \$704 million in 1979 and \$784 in 1981. However, net income fell from \$17 million in 1977 to \$12 million in 1979 and further to -\$48 million in 1981. This decline in industry profitability was due largely to rising debt (particularly short-term, which rose by 513 percent during 1977-81), pushing short-term interest costs up from 1 percent of gross sales in 1977 to 5 percent in 1981. This debt resulted from declining sales relative to production and was used to finance rising inventories and sharply reduced working capital. In fact, as explained more fully in the following section, the financial position of the industry was such that many of the largest firms became effectively insolvent and sought assistance from the Government.

The industry has since been restructured and the debt problems alleviated by the conversion of debt to equity with an additional heavy infusion of Government funds. Despite this restructuring, the largest and only public traded fish processor in Canada, National Sea Products, experienced a decline in net income from -\$691,000 in 1981 to -\$14.1 million in 1983.

### Productivity

Production, employment, and average output per worker in Atlantic Canada are presented in the following tabulation (compiled from official statistics of the Canadian Department of Fisheries and Oceans):

<u>Year</u>	<u>Production</u> <u>(1,000,000</u> <u>pounds)</u>	<u>Number of</u> <u>employees</u>	<u>Production per</u> <u>employee</u> <u>(pounds)</u>
1979-----	1,239	22,445	55,200
1980-----	1,181	21,909	53,927
1981-----	1,249	22,168	56,327
1982-----	1,288	21,604	59,640

The above statistics cover production and employment in the processing of fish of all species and all fishery products; groundfish accounted for about 55 percent of the quantity produced in 1981; the subject groundfish, about

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<sup>1/</sup> Report of the Task Force on Atlantic Fisheries, Department of Fisheries and Oceans, Navigating Troubled Waters: A New Policy for the Atlantic Fisheries, Ottawa, December 1982. <sup>99</sup>

37 percent; and scallops, about 2 percent. Total production in 1982 totaled 1,288 million pounds, up 4 percent from 1,239 million pounds in 1979. Employment, meanwhile, declined irregularly from a high of 22,445 persons in 1979 to a low of 21,604 persons in 1982, or by 4 percent. With production generally increasing and employment decreasing, output per employee increased from 55,200 pounds per worker in 1979 to 59,640 pounds per worker in 1982, or by 8 percent.

### Restructuring

The most recent development affecting the conduct and long-term performance of the Canadian groundfish and scallop industry is a massive restructuring of the offshore fleets and vertically integrated processing companies that own these fleets. A result of the 1982 Federal Government task force study of the economic problems of the Atlantic fishing industry, <sup>1/</sup> the restructuring is an attempt by the Federal Government to provide temporary assistance to the processing sector in the hope that stability and efficiency will return to the industry.

The processors---five major firms that traditionally together accounted for an estimated 75 percent or more of frozen groundfish fillet and block production and an even greater proportion of product marketing, and also a few one-plant processors---were merged into two "supercompanies" by the Federal Government following a severe price-cost squeeze in the early 1980's. This squeeze, according to the task force report, was caused by rapidly rising short-term interest rates on debt that rose by 500 percent between 1977-81, combined with reduced sales in the recession-depressed U.S. market. The two new firms differ in several respects. One, a Nova Scotia-based company made up primarily of the Nova Scotia holdings of National Sea Products and H.B. Nickerson & Sons (which previously controlled a majority share in National Sea Products), which continues to be primarily a privately held company. The Federal Government provided US\$81 million in cash grants directly to the firm, plus an additional \$56.8 million (over 5 years) to the firm's principal creditor, the Bank of Nova Scotia, which, in return, reportedly converted about \$80 million of debt to the bank into equity, releasing the company from substantial debt obligations. In return, the Federal Government obtained a 20-percent interest in the company's common stock and \$8.1 million of preferred stock. In addition, the Province of Nova Scotia converted \$20.3 million of the company's debt to equity and postponed payment of principal on another \$20.3 million of debt for 5 years.

The second new company, based in Newfoundland, is the product of the merger of Fishery Products (nine plants), the Lake Group (six plants), T.J. Hardy (five plants, and partially owned by H.B. Nickerson), three single-plant companies, plus North Atlantic Fisheries, which with eight plants constituted the Newfoundland operations of National Sea Products and H.B. Nickerson. In addition, the Newfoundland company controls 12 former Nickerson scallop draggers, which remain based in southwestern Nova Scotia. The assets of the above companies also included at least 72 offshore, groundfish trawlers. This company is now controlled by the Federal Government, which in return for

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<sup>1/</sup> Ibid.

\$61 million in cash grants to the company, obtained a 60-percent share of the common stock plus 61 million dollars' worth of preferred stock. The Province of Newfoundland controls 25 percent of the common stock and \$25.6 million of preferred stock, and the Bank of Nova Scotia controls 12 percent of the common stock and \$35.7 million in preferred stock.

The restructuring was designed to streamline the vertically integrated processing companies, upon which many inshore fishermen and relatively small, independent processing plants also depend for reprocessing and marketing of their products. However, few if any of the inefficient plants, located primarily in Newfoundland, have been closed; rather, the Newfoundland Government has reportedly agreed to finance any losses incurred by the Newfoundland-based company in the operation of inefficient plants, effectively maintaining the status quo with respect to capacity utilization. The companies are relieved of substantial debt obligations, which, combined with the Government infusions of cash, allows for more working capital. A decline in working capital, which for a sample of 100 processors (80 percent of the industry) audited in 1982 fell from \$19.8 million in 1977 to -\$88 million in 1981, was a principal cause of the industry's plight in recent years, according to the task force report. Consolidation of marketing activities by reducing the number of competing firms is intended to allow for more efficient planning of production and marketing. Finally, the maintenance of a principal market for much of the groundfish products and scallops of the inshore segment of the industry is intended to support prices and incomes in that sector; without the international market channels developed by the large companies, particularly for frozen products, many small processors would be unable to sell their products or justify purchases of fish from inshore fishermen.

The Canadian Federal and Provincial governments' involvement in the restructuring is intended to be temporary. As the restructured firms' financial situation improves, Government-held shares in the firms are intended to be sold to the public, although no timetable for such sales has been established. At the Commission hearing in Boston, representatives of Canadian processors indicated that if there were a timetable placed on sales of shares to the public, buyers would be given an advantage by waiting until the deadline for sales, creating a buyer's market for shares of the companies. <sup>1/</sup>

#### Resource Availability and Management

As with the U.S. industry, the fishing industry in Canada is constrained by, among other things, the resources available to its fishermen. These resources are largely the same species as those in U.S. waters, but the populations of each species are, with few exceptions, separate and under almost complete control of the Canadian Government.

The quantity of these resources, however, is vast compared with those available to Northeastern U.S. fishermen. Of the subject groundfish, the total weight of fish available to Atlantic Canadian fishermen was 1.74 billion pounds in 1983, compared with 444 million pounds to Northeastern U.S.

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<sup>1/</sup> Testimony of Mr. Ron W. Bulmer, transcript of the Boston hearing, 101 p. 202.

fishermen. Moreover, although it is generally felt that the upper limits to growth of the U.S. stocks may have been reached, there are projections by the Canadian Government of large increases in future supplies of groundfish, particularly cod, given proper management of the stocks.

### Availability

The extent to which the groundfish resources off Canada's Atlantic coast are available to Canadian fishermen is determined by the Federal Government in its development of the annual groundfish fisheries management plan. The Canadian quotas presented in these plans and the allocations to various vessel size and gear-type categories specify the maximum allowable catch of each species for Canadian fishermen.

Table 49 presents, for all Atlantic Canada, the total allowable catch <sup>1/</sup> and the Canadian quota for each subject groundfish species during 1979-84. With the exception of haddock, currently suffering from poor reproduction in several earlier years and having never fully recovered from excessive fishing effort several years ago, the Canadian quotas for groundfish have been rising or have been held constant during 1979-84. As evidenced from the relation between TAC and Canadian quotas for each species, Canadian harvesting capacity is sufficient to harvest most of the TAC of each species, up to 80 percent or more of the TAC's in 1984.

Table 49.--Groundfish: Total allowable catch (TAC) and the Canadian quota, by species, 1979-84 <sup>1/</sup>

(In millions of pounds)						
Species and TAC	1979	1980	1981	1983	1984	
Cod:						
TAC-----	951.3	1,086.9	1,100.5	1,475.8	1,483.6	
Canadian quota-----	595.4	777.9	866.8	1,236.7	1,218.4	
Haddock:						
TAC-----	2/	166.4	184.1	174.2	147.7	
Canadian quota-----	66.4	100.1	124.0	134.5	125.7	
Pollock:						
TAC-----	66.1	88.2	88.2	99.2	116.8	
Canadian quota-----	46.2	65.6	65.6	88.2	93.5	
Flatfish:						
TAC-----	293.2	295.4	317.5	318.6	314.2	
Canadian quota-----	255.2	254.3	273.2	279.9	275.4	

<sup>1/</sup> Data for 1982 are not available.

Source: Compiled from official statistics of the Canadian Department of Fisheries and Oceans.

<sup>1/</sup> The total allowable catch represents resource availability; see the following section on management.

Availability of cod, by far the most commercially important groundfish species, increased by 108 percent, from 595 million pounds in 1979 to 1.24 billion pounds in 1983, and then decreased slightly to 1.22 billion pounds in 1984. The quota for haddock rose by 103 percent between 1979 and 1983 and then declined by 7 percent in 1984. The pollock quota has risen by 102 percent, from 46 million pounds in 1979 to 94 million pounds in 1984. The quota for flatfish has risen least, up only 8 percent from 255 million pounds in 1979 to 275 million pounds in 1984.

Sea scallops are available to Canadian fishermen in commercially harvestable quantities in the Northeast Peak of Georges Bank, the Bay of Fundy, the Gulf of St. Lawrence, and certain parts of the continental shelf off Newfoundland and Labrador. Georges Bank is the principal fishery, accounting for an estimated 6.1 million pounds of scallop meats in 1983, or 45 percent of all Atlantic Canada scallop landings in 1983.

Scallop availability in Atlantic Canada, particularly on Georges Bank, is subject to the same cyclical pattern as in the Northeastern United States. In 1977, Canadian scallop landings from Georges Bank reached a record 28.9 million pounds and have since declined almost continuously to a point where, according to a 1984 Canadian Government assessment, the resource is at its lowest level since reliable data have been compiled. This appears to be a result both of poor reproduction and of overfishing by both U.S. and Canadian harvestors on Georges Bank.

Other scallop fisheries available to Canadians appear to be facing similar problems. Catch rates of vessels licensed to fish in the Bay of Fundy peaked in 1980 and 1981 and have since declined somewhat, while total landings continued to stay high (2.9 million pounds in 1982) as the number of vessels increased from 97 in 1979 to 131 in 1981. In 1983, licensed vessels decreased in number to 106, and landings fell to 1.9 million pounds. Current assessments by the Canadian Government, however, predict reduced reproduction and catch rates in the near future. The lack of evidence of substantial reproduction of Gulf of St. Lawrence scallops during the last 5 years suggests that harvests in that area will decline in the near future, although 1982 and 1983 catches were high, at 609,000 and 734,000 pounds, respectively. In St. Pierre Bank, off the southern coast of Newfoundland, commercially exploitable concentrations of sea and Icelandic scallops occur. These resources are harvested almost exclusively by Nova Scotia scallopers, more so in recent years with the decline of the Georges Bank fishery. Although there is an abundance of scallops of many ages, most are relatively old, and the prospects for continued abundance are uncertain, particularly if Canadian scallopers displaced from the U.S. portion of Georges Bank (see the section on competitive conditions further in the report) are forced to fish St. Pierre more heavily.

### Management

With the arrival of the 1974 depression in the Atlantic fisheries in Canada, pressure increased on the Federal Government to act to save the resources of the fisheries. On January 1, 1977, Canada extended her maritime boundary to 200 miles and began, like the United States, to implement fishery management plans for major fisheries within her control. Atlantic groundfish landings in Canada subsequently improved, rising from 1.1 billion pounds in 1977 to 1.7 billion pounds in 1983.

In Canada, exclusive jurisdiction over all fisheries resources rests with the Federal Government, but in the United States, each State has exclusive jurisdiction over fisheries resources within its territory. The Canadian Federal Government, acting through the Minister of Fisheries and Oceans, formulates and enforces policy on fisheries management. In the United States fisheries policy is influenced by a number of government agencies and regional management councils.

The groundfish fisheries management plan is the core of fisheries management in Atlantic Canada. The Canadian quota of the TAC of each species within each North Atlantic Fishery Organization (NAFO) division is allocated among vessel sizes (under 65 feet, 65 to 100 feet, and over 100 feet) and gear types ("fixed" gear, such as gill nets, versus "mobile" gear, such as otter trawls), and in some cases by season. In all cases, the plans are effective for only 1 calendar year.

The preparation of the groundfish fisheries management plan, briefly, is as follows. Assessments of groundfish stocks are made by individual scientists and are reviewed by a subcommittee of the Canadian Atlantic Fisheries Scientific Advisory Committee (CAFSAC). A TAC <sup>1/</sup> is developed by CAFSAC and recommended to the Atlantic Directors General Committee (ADGC), a group composed of regional directors of the Federal Department of Fisheries and Oceans. ADGC usually attempts to input social and economic considerations into the biological assessments made by CAFSAC of the various TAC's. The TAC's are then examined by a committee of government fisheries operations personnel, the Groundfish Working Group, which suggests allocations of each TAC among the sectors of the harvesting industry. Once approved by ADGC, the plan goes to the Senior Groundfish Advisor, who consults with persons in the industry for their recommendations. A draft plan is then submitted to the Minister of Fisheries and Oceans, who accepts or modifies the plan in consultation with the ADGC. After review by the Atlantic Groundfish Advisory Committee, a group of government officials and industry representatives, the final plan is again reviewed by the Minister, his deputy, and regional directors and formally approved and implemented by the Minister.

Beginning with 1984, the Federal government began permanent implementation of "enterprise allocations," quotas of each species in each NAFO division allocated by fishing company, for the offshore, or trawler, harvesters. This is a major innovation in fisheries management, as it represents a shift away from the traditional character of the fisheries, namely the "open access" nature of the resource. Instead of all "owning" the fish stocks (before they are harvested), this "quasi-property rights" approach to fisheries management gives trawler owners (primarily the integrated

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<sup>1/</sup> The TAC for most groundfish species in Atlantic Canada are set at the so-called "F 0.1 level." This is defined by the Canadian government as the level of fishing mortality (harvest) at which the marginal increase in yield by adding one more unit of fishing effort is 10 percent of the increase in yield by adding the same unit of effort in a lightly exploited stock.

processors) certain rights to a specific share of the fish stocks, which they can harvest (or not) when they see fit. As such, enterprise allocations are designed to avoid the annual rush to the stocks at the start of the fishing season by firms hoping to get as much of the industrywide quota as they could before the quota is filled. This situation, common in previous years and typified by the 1981 northern cod "season" during which the quota was filled in 8 weeks, resulted in gluts of fish at first, and when the quota was filled and the fishery closed, extensive idle harvesting and processing capacity. Under the present regime, each offshore harvesting company is at once "guaranteed," and restricted to a maximum quantity of each groundfish species each year. Inshore harvesters (vessels less than 100 feet in length, as defined in the new management plan) are not included in the enterprise allocations.

Using the inshore-offshore allocations of the Canadian quotas of each TAC, as outlined in the 1983 groundfish management plan on the basis of historic relative harvesting levels, the offshore companies are in turn allocated certain portions of the total offshore allocation. Although the absolute levels of allocations will change annually as the TAC's are adjusted, the relative proportions are to be fixed for the 5-year period, 1984-88.

This innovative management regime is expected to not only relieve pressure on the fish resources, but to stabilize the industry by smoothing out landings over the season, thus relieving gluts and more efficiently moving fish through the marketing channels.

The inshore harvesting sector is regulated by the Federal Government not only through relevant quotas in the groundfish plans, but also under a new management scheme called "sector management," instituted in 1982. This program regulates inshore fishing vessels by restricting fishing to within one of three divisions, or sectors, of the Canadian Atlantic coast. Each sector falls under one of three regional jurisdictions of the Federal Department of Fisheries and Oceans (DFO): Newfoundland, the Gulf of St. Lawrence, and the Nova Scotia-Bay of Fundy region.

The DFO Director General of each region issues licenses to inshore fishermen allowing them to fish within that sector only. Although the licenses are transferable within a sector, they cannot be transferred between sectors. Thus, inshore fishermen, who prior to 1982 could theoretically fish the entire Atlantic Canada coast, are now restricted to fishing within a given sector; on the other hand, they are protected from competition from fishermen outside their sector. There are provisions allowing for limited overlapping of sector boundaries, although the Canadian Government estimates no more than 5 percent of the inshore fleet previously fished across what are now sector boundaries.

Scallop harvesting by Canadian fishermen is centered on the resources of Georges Bank, where Canadian vessels fish only the northeast corner of the bank, an area commonly called the Northeast Peak. Other areas also produce scallops in commercial concentrations, such as the Bay of Fundy and the Gulf of St. Lawrence, but Georges Bank is of prime importance, accounting for the bulk of Canada's scallop harvest. Canada's regulations concerning scallop harvesting consequently differentiate between Georges Bank and any other area.

Currently, no fishing vessel less than 19.8 meters (65 feet) in overall length can harvest scallops on Georges Bank unless it obtains a permit (good for one trip only) from the Department of Fisheries and Oceans. However, because it is approximately 100 miles from the edge of Georges Bank to the closest Canadian fishing port (in Southwest Nova Scotia) and substantially more than 100 miles from many scallop ports to the scallop grounds of Georges Bank, this restriction on vessel size has relatively little effect on limiting effort by small-scale scallopers in Canada. Instead, small vessels from Southwest Nova Scotia fish for scallops in the adjacent grounds on Brown's Bank and the Bay of Fundy.

Of greater importance to scallop harvesters are Federal Government restrictions on trip limits. The maximum trip length for any Canadian scallop vessel is 12 days at sea, day of departure and day of landing inclusive. Further, there is a maximum trip limit of 13,608 kilograms (30,000 pounds), meat weight, of scallop landings allowed per vessel. No more than 81,648 kilograms (180,000 pounds) of scallops may be landed by any vessel during any one of the following periods: April 1-July 31 of any year; August 1-November 30 of any year; or December 1 of any year to March 31 of the following year. Finally, Federal restrictions limit the average size of scallops harvested from Georges Bank. Meat counts (the number of scallop meats per unit of weight) of scallops landed by vessels in excess of 65 feet in length cannot exceed 39 per 500 grams (35.7 per pound); no restrictions exist on vessels less than 65 feet in other areas. This restriction protects the scallop resource by limiting the number of small (young) scallops that can be harvested. This meat count restriction is tied closely to the comparable restriction on Northeastern U.S. sea scallop harvesters, because most (80 percent during 1979-81) Canadian production of sea scallops is marketed in the United States, and those harvested in Georges Bank must meet U.S. meat count restrictions.

#### Government Programs

Public financial assistance to Atlantic Canada fisheries falls into five broad categories: construction assistance; operating cost assistance; price-support programs; technical and marketing services; and unemployment insurance. Financial assistance is provided at the Federal Government level primarily by the following Departments: Fisheries and Oceans; Industry, Trade, and Commerce; Regional Economic Expansion (combined with Industry, Trade, and Commerce in 1982 to form Regional Industrial Expansion); and Revenue. In addition, Provincial aid is available from Provincial government Departments of Fisheries and Fisheries Loan Boards (one in each Province).

#### Construction assistance

There are two Federal grant programs for fishing vessel construction assistance, one administered by Fisheries and Oceans, the Fishing Vessel Assistance Program, and the other by Industry, Trade, and Commerce (and now, Regional Industrial Expansion), the Shipbuilders' Assistance Program.

The Fishing Vessel Assistance Program, instituted in 1942, provides nonrepayable grants for construction or purchase of fishing vessels 35 to 75 feet in length. Prior to 1982, 35 percent of the vessel cost was payable as a grant; since 1982, the maximum has been 25 percent. Grants cannot exceed Can\$100,000 for a wooden-hull vessel or Can\$125,000 for a steel hull. In 1982 and 1983, 356 vessels were acquired with funds from this program at a total program expense of \$3.9 million, representing an average of \$10,968 per vessel.

The Shipbuilders' Assistance Program, instituted in 1961, has provided grants to shipbuilders of vessels 75 feet or longer, including (but not limited to) fishing vessels. During 1961-63, the grant covered 40 percent of the vessel's cost; thereafter, through 1968, the rate was 35 percent. From 1961 to 1968, however, Atlantic fishing trawlers qualified for a 50-percent grant. In 1968, the rate for trawlers fell to 35 percent, and for other vessels, to 25 percent. Since that time, the rate has been decreasing slowly; at present, the grant covers 9 percent of vessel costs. During the 1982 fiscal year, \$2.23 million was provided in assistance to shipbuilders for groundfish and scallop vessels.

In addition to Federal grants, Atlantic Canadian fishermen obtain privately funded, Government-guaranteed vessel acquisition loans. The Fisheries Improvement Loans Act of 1955 established the Fisheries Improvement Loans Program, the objective of which is to increase the availability of credit to fishermen. The program was administered by the Department of Revenue until 1978, when it came under the jurisdiction of Fisheries and Oceans. Private banks or other lenders are designated as tenders for the loans, which are then guaranteed by the Government against default, allowing fishermen to obtain financing for vessel construction, repair, or overhaul, equipment purchase or construction, onshore facilities construction, and so forth. Maximum amounts that can be borrowed at any one time have increased over time, from C\$10,000 at the program's inception to C\$25,000 in 1970, C\$50,000 in 1974, C\$75,000 in 1977, and C\$150,000 as of 1980. The maturity of the loan is usually 15 years; the interest rate is prime plus 1 percent. In the 1983 fiscal year, 743 loan guarantees, totaling \$9.29 million, were provided to the industry.

Fishermen in Canada also benefit indirectly from public assistance provided for the expansion of boat-building and processing facilities and the development of harbors and ports. Federal funding for these activities comes primarily from the Department of Regional Industrial Expansion and the Small Craft Harbours Branch of Fisheries and Oceans.

There are also sources of construction assistance available from Provincial government agencies. Each Provincial government has a department of fisheries which administers a Fisheries Loan Board. For example, since 1978, Nova Scotia fishermen may receive direct loans from the Nova Scotia Fisheries Loan Board under the Fisheries Development Act. According to Nova Scotia Fisheries Loan Board officials, the board borrows funds from private lenders at rates that in 1984 have been at about 13 percent and then reloans the funds to fishermen at 8 percent. The downpayment required of borrowers on these loans is about 20 percent. In the 1984 fiscal year, 175 loans totaling \$4.27 million were provided to the industry.

The Newfoundland Fisheries Loan Board provides direct funding for loans less than Can\$50,000 and guarantees private loans in excess of that amount. The board made 632 loans during the 1984 fiscal year, averaging about \$7,060 each, at an interest rate of prime less 3 percent. Another Newfoundland loan program, the Loan Deficiency Guarantee Program, paid Can\$3.4 million to cover loan defaults in 1981.

#### Operating cost assistance

Canadian fishermen may receive Federal and Provincial financial assistance in offsetting the costs of such inputs as ice, fuel, and equipment.

Under a joint Federal-Provincial program instituted in 1974, the Nova Scotia Department of Fisheries provides grants of 50 percent (to a Can\$15,000 maximum) of approved costs of various types of facilities and equipment. Examples of such equipment include plastic- or fiberglass-insulated fish boxes, refrigeration and cold-storage facilities for bait and baited gear, and icemaking facilities (for the latter item, the Province provides 25 percent of the cost, and the Federal Government provides 50 percent). During 1983 and 1984, the Federal government provided \$545,000 in assistance for icemaking and fish-chilling facilities.

As of 1980, fishermen in Canada were exempted from paying the 4.6 percent per imperial gallon Federal sales tax on fuel. In addition, Nova Scotia fishermen were not required to pay the Provincial sales tax on fuel of 29.1 cents per imperial gallon.

#### Price support

Price-support programs are administered by the Fisheries Prices Support Board, an agency of the Department of Fisheries and Oceans that was authorized under section 9 of the Fisheries Prices Support Act of 1944. The board is charged with the responsibility to "support prices of fishery products where declines have been experienced ... due to factors beyond fishermen's control." The board determines "fair" prices to fishermen and processors and is empowered to buy and sell fishery products at those prices or to make deficiency payment to producers equal to the difference between the "fair" price and the average price at which such products were sold. Although most of the support programs are directly targeted at the processing sector, some contain provisions requiring participating processors to maintain ex-vessel prices at certain levels, thus benefiting fishermen.

During fiscal years 1975-84, the Fisheries Prices Support Board authorized fish purchases, working capital loans, and repayable grants for groundfish-related activities in the amount of Can\$86,071,351. As an example of the board's activities, it announced in December 1981 a Can\$15 million program to support the prices of frozen fillets and blocks of cod, haddock, flounders, and ocean perch at Can\$1.45 per pound, "the average price at which the Board has determined such products were sold during September 1-December 15, 1981." <sup>1/</sup> Payment of "not more than 17 cents per pound" was made to

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<sup>1/</sup> Order-in-Council of Dec. 21, 1981, under the Fisheries Prices Support Act.

exporters of the above products on sales made during that period. According to a board official, actual prices paid ranged from 8 to 15 cents per pound. In addition, payment was made "of not more than 17 cents per pound on frozen fillets and blocks of ocean perch and flatfish (except halibut) held in inventory on December 16, 1981, by Canadian processors, up to a maximum of 7 million pounds of ocean perch and 10 million pounds of flatfish." <sup>1/</sup> In December 1981, there were some 6.6 million pounds of the products in question in inventory in Atlantic Canada.

#### Technical and marketing services

A variety of technical services and assistance in export sales and other marketing activities are provided to the fishing industry by Federal and Provincial agencies. To a very large extent, the two types of services are related, particularly in light of the recently implemented quality improvement program, a primarily Federally sponsored project designed to assist the industry by instituting production processes and practices which will help maintain consistent quality of Atlantic Canada fishery products, long a severe problem facing the industry in world markets.

The Canadian Federal Department of Fisheries and Oceans provides technical advice and assistance in the form of gear and vessel development, harbor improvement, statistical collection and analysis, and other activities. Projects in recent years have included development and demonstration of improved fishing techniques; development of the quality improvement program and demonstration of quality-improving methods of production, development of an experimental scallop-shucking machine and on-vessel shrimp-processing equipment, and commercial resource surveys.

The Nova Scotia Department of Fisheries provides technical advice on such matters as installation of bait freezers, icemakers, and saltfish tanks; gear conversion and onboard gear installation; and other problems of vessel and facilities development. In addition, the department monitors harbor facility needs for the Federal Department of Fisheries and Oceans' Small Craft Harbours Branch.

#### Unemployment insurance

In addition to the Canadian Department of Revenue's general Unemployment Insurance, available to all Canadian workers (for which specific payments to fishermen are not available), unemployed fishermen also may receive benefits from a subprogram within unemployment insurance designed specifically for the industry, which provides benefits to all fishermen but those fishing less than 10 weeks per year. The section of the program most often utilized is that providing seasonal benefits. Benefits start the week of May 15 and last a total of 6.5 months. To qualify, fishermen must have fished a minimum of 10 to 14 weeks (depending on general economic conditions in the area) between the most recent March 31 and the date of claim application.

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<sup>1/</sup> Ibid.

Payments to fishermen under the program are as follows: 5 weeks of unemployment insurance for every 6 weeks worked; recipients may earn up to 25 percent of the value of their benefits simultaneously with their unemployment insurance without suffering a reduction in benefits.

#### Other sources of financial assistance

Other Government programs of financial assistance that benefit fishermen and processors include those that assist with financing of business expansion, exporting, and marketing; research and development; and workforce training.

Loans, loan guarantees, and equity financing are available from the Federal Business Development Bank, a Crown corporation set up to assist small and new businesses that have difficulty with access to capital. Interest rates on loans are similar to those generally available to businesses.

The Small Business Loans Administration of the Department of Regional Industrial Expansion (formerly the Department of Industry, Trade, and Commerce) provides loan guarantees on loans made to the industry by private lenders. Approved loans cover only expenditures on fixed assets, either their acquisition or refurbishment. Up to 80 percent of equipment cost, and 90 percent of the cost of land and buildings, is eligible for loan guarantees; the rate of interest charged to the borrower is prime plus one percent. A maximum of Can\$100,000 outstanding per borrower at any one time is allowed.

The Export Development Corporation (EDC) provides loans and loan guarantees to non-Canadian borrowers to finance the export of Canadian goods and services. The intent of the program is to expand the type and number of jobs in Canada. In addition, the EDC insures export transaction against political and commercial risks not covered by private insurers; these risks may include nonpayment arising from buyer insolvency, currency and conversion restrictions, export controls, and other problems occurring outside of Canada and not avoidable by the exporter.

The Program for Export Market Development of the Department of Regional Industrial Development was set up to provide assistance to Canadian exporters in developing new markets for goods and services. Assistance available to the fishing industry includes export market studies and feasibility studies; financial assistance is provided when there is a proven need to share risks of such market development. The assistance is repaid by the business if and when sales contracts are obtained.

The Department of Regional Industrial Expansion's Enterprise Development Program (EDP) provides assistance to processors to improve their viability and international competitiveness. The EDP guarantees up to 90 percent of a loan made by a private lender to processors for restructuring of operations or to supplement other working capital sources; in addition, the EDP provides up to 75 percent of approved costs of research and development, market feasibility studies, pollution technology projects, and other investment, where such costs would otherwise be out of the reach of the business. In 1981, such loans to businesses with no more than Can\$5 million in annual sales could not exceed Can\$200,000.

Federal-Provincial subsidiary agreements, another type of assistance to Canadian industry, are set up under the Regional Development Incentives Act by the Department of Regional Industrial Expansion. These programs are designed to provide incentives for the modernization and expansion of manufacturing and other facilities in certain areas designated as underdeveloped economically. One Federal-Provincial subsidiary agreement exists in each Province of Canada. Although most programs within each agreement involve the provision of general infrastructure (e.g., the development of harbor and public dock facilities, harbor dredging, fish-unloading facilities, etc.), some programs offer direct opportunities to individual businesses. The agreements are jointly funded by Federal and Provincial governments. Assistance to businesses is typically in the form of nonrepayable grants. Other sources of research and development assistance include the Industrial Research Assistance Program of the National Research Council and the Industry Energy Research and Development Program of the Department of Regional Industrial Expansion.

The Canadian Manpower Industrial Training Program of the Federal Employment and Immigration Commission reimburses employees for wages and training costs (40 to 85 percent of wages and 50 to 100 percent of training costs) incurred in the training of new workers or upgrading of the workforce that might otherwise be laid off due to technological change. In addition, the Commission provides living allowances or other benefits to persons enrolled in its Manpower Training Program, which provides skills required to move into higher paying jobs. Travel and relocation expenses are also covered for unemployed or underemployed persons seeking alternative employment in other, more developed regions.

The Inspection and Technology Branch of the Department of Fisheries and Oceans provides a fish inspection program, which helps maintain high quality in fish products and safety in plants. This results in higher prices for the products and more ready markets for Canadian fish.

The Marketing Services Branch of the Department of Fisheries and Oceans provides a variety of market information to the industry, including statistical and management information, trade and market outlook reports, identification of market opportunities, promotion of fishery products, and support of new product development.

The Small Craft Harbours Program of the Department of Fisheries and Oceans provides funds to Provincial and municipal governments for the development of harbor facilities for commercial fishermen and for recreational use. Approximately Can\$30 million per year is used to develop such facilities as electric power outlets and lighting, hoists and other offloading devices for fish, freshwater supplies, and harbor dredging.

## INDUSTRIES OF OTHER MAJOR COMPETITORS

### Iceland

Iceland is the second largest foreign source of supply of groundfish to the Northeastern U.S. market, with 68.3 million pounds, valued at \$95.9 million, supplied in 1983. This represented 21 percent by quantity of total regional groundfish imports in 1983.

### Number of firms and employment

The fishing industry in Iceland is that country's most important source of employment and export activity. According to a 1982 OECD study, the fishing industry accounted for one-sixth of the nation's employment and generated 80 percent of its export earnings. <sup>1/</sup>

In 1982, 6,144 persons were employed on fishing vessels, a steady increase from 5,822 in 1979. Of the 1982 employment, 24 percent was on offshore trawlers, 31 percent on decked vessels over 100 gross tons, 30 percent on vessels under 100 gross tons, and 15 percent on open boats. Between 1979 and 1982, the proportion of total harvesting employment on trawlers and open vessels increased, and that on decked vessels over 100 tons declined.

The number of fishing vessels (all vessels with engines) in 1982 totaled 837, down 4 percent from 873 vessels in 1980. Most of these vessels fell in the under 49 gross tonnage class, as shown in the following tabulation (data from the Organization for Economic Cooperation and Development, in tons):

<u>Tonnage class</u>	<u>1980</u>		<u>1982</u>	
	<u>Number</u>	<u>Tonnage</u>	<u>Number</u>	<u>Tonnage</u>
1 to 49-----	443	7,014	415	6,648
50 to 99-----	130	9,105	101	7,035
100 to 149-----	85	10,527	87	10,800
150 to 499-----	188	57,149	208	64,142
500 and over-----	<u>27</u>	<u>21,258</u>	<u>26</u>	<u>21,280</u>
Total-----	873	105,053	837	109,905

Although the absolute number of vessels has declined, there has been a shift toward larger vessels, resulting in an overall increase in gross tonnage, indicating an increase in harvesting capacity. The total catch provided by the smallest vessels is insignificant to the industry as a whole, although many Icelandic communities are supported by this small-scale fishery. Most small vessels are owned by individuals, while the trawler fleet is generally owned by corporations. Vertical integration backward (into vessel ownership) by fish processing companies is reportedly increasing in scale. Approximately 10,000 persons are employed in fish processing in Iceland.

### Production

The Icelandic fishing industry is currently experiencing severe problems resulting from biological and economic factors. The staple of the industry is cod, accounting for 35 percent of the 1983 harvest of fish. This resource is

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<sup>1/</sup> OECD, "International Trade in Fish Products: Effects of the 200-mile limit", Paris, 1982.

in decline, however, in large because of the overfishing of capelin, the principal food of cod, in the 1970's following the collapse of the herring stocks in the late 1960's. Capelin stocks declined, as evidenced by declining catches and the imposition of a total ban on capelin fishing during virtually all of 1982. (This ban was lifted in late 1983.) Cod catches, after rising from 200,000-300,000 metric tons annually during the early 1970's to a high of 460,000 tons in 1981, fell to 373,000 tons in 1982 and an estimated 288,000 tons in 1983. Contributing to the decline in catch has been average or less-than-average cod reproduction in recent years, coupled with record cod catches in 1980 and 1981, which served to further weaken the cod stocks.

Harvests of haddock, pollock, and flatfish, have provided some reason for optimism on the part of the Icelandic fishing industry. From 1978 to 1983, catches of haddock rose 51 percent; pollock, by 25 percent; and flatfish, by 173 percent. But these catches do not compensate entirely for declining cod catches, and based on 1981 average prices, cod (at I.Kr. 1.45 per pound) is more valuable than haddock (I.Kr. 1.41 per pound), pollock (I.Kr. 0.97), or flatfish (I.Kr. 1.30).

Most fishery products in Iceland in 1982 were in the forms of frozen and salted fish, as shown in table 50.

Table 50.--Fishery products in Iceland, by forms and by species, 1982

(In thousands of metric tons, landed weight)

Species	Frozen	Salted	Dried	Fresh	Other	Total
Cod	131.3	179.4	56.1	14.9	0.1	381.8
Haddock	49.8	0.2	5.7	11.1	0.0	66.8
Pollock	31.0	11.3	17.9	4.9	0.0	65.1
Flatfish	5.5	0.1	0.0	1.0	0.1	6.7
Scallops	11.5	0.0	0.0	0.0	0.0	11.5
Other	175.5	32.1	8.6	18.2	16.9	251.3
<b>Total</b>	<b>404.6</b>	<b>223.1</b>	<b>88.3</b>	<b>50.1</b>	<b>17.1</b>	<b>783.2</b>

Source: Compiled from official data of the OECD.

In 1982, 131,300 metric tons (landed weight) of cod, 34 percent of the total, was processed into frozen products, 179,410 tons (47 percent) was processed into saltcod, but only 14,861 tons (4 percent) was processed into fresh product. Most haddock and flatfish were processed into frozen products with very little of either haddock or flatfish going into salted form. Most pollock was processed as either frozen or salted/dried product.

Over time, particularly as the cod catch rose in the 1970's, greater emphasis was placed on the salted and dried forms, as opposed to traditional frozen production, which remained quite steady. As the cod stocks declined, however, the salt and dried production was maintained at the expense of frozen production, at least through 1981. In 1981 and 1982, world markets for salt and dried fish, particularly Nigeria (which developed as a major dried fish

market after the rise in world oil prices in the 1970's), were sharply curtailed when oil prices fell and cut into Nigeria's export earnings. Since 1980, the decline in cod resources has combined with curtailed markets for cod products to create added burdens on the Icelandic fishing industry.

In frozen fish production, also geared to export markets, output declined from 203,000 tons in 1979 to 134,000 tons in 1983. This was the result primarily of the declining cod stocks, although frozen cod production was replaced in part with haddock, redfish (ocean perch), turbot, and herring.

The principal markets for groundfish vary by product form. Salfish, primarily cod (and some pollock and herring) is exported to Portugal, the largest salfish market, and other European nations. With the advent of the 200-mile limit adopted by most coastal states, Portugese trawler fleets were driven from many traditional distant fishing grounds, and Portugal consequently became a larger importer of salfish. Dried groundfish, as noted above, was shipped primarily to Nigeria prior to the decline in oil prices in recent years. Since then, dried groundfish production has dropped off to nominal levels. Exports of fresh groundfish products that are the subject of this investigation have not historically been of much significance, accounting for only 5 percent of total production of subject groundfish products in 1982; production of frozen groundfish, however, accounted for 42 percent of total 1982 groundfish output, and is almost all exported, primarily to the United States.

Fish trade with the United States in general is accounted for mostly by exports of frozen fish (58,000 tons in 1982, or 16 percent of total exports) and fresh fish (1,800 tons in 1982, or less than 1 percent of total exports).

#### Government involvement in the fisheries

The tremendous importance of the fishing industry to the Icelandic economy provides incentives for Government involvement in maintaining employment and exports. Management of the fisheries takes many forms and indicates a growing trend toward incorporating bio-economic, rather than just biological considerations into Government policy toward the fisheries. Management schemes include gear and vessel size restrictions, quality-control programs, and policies to control overinvestment in order to prevent overfishing of the stocks and low returns to fishing. Groundfish trawl meshes can be no smaller than 155mm (6.1 inches), and trawlers cannot fish for cod during 150 days per year.

A price support program has been in existence for several years, designed to redirect harvesting effort to underutilized, lower valued species such as plaice, Norway pout, and blue whiting. This program is financed by levies on exports of fisheries products, thus constituting a transfer payment from processors and exporters to fishermen. In addition, in 1982 another program, also financed by fish export levies, was instituted to provide assistance covering 35 percent of the cost of fuel to harvesters.

The Fisheries Loan Fund promotes production and productivity in the fishing industry by granting investment loans for the construction of fishing vessels, processing plants, machinery, and buildings. The fund is financed by fish export levies and by interest payments on loans. In 1979 (the latest

year for which data are available), some \$34.9 million was distributed in loans to the industry, 46 percent for vessels, 28 percent for plants, and 26 percent for equipment.

It has been alleged by Canadian industry and Government representatives in connection with this investigation that the Icelandic Government undertakes frequent deliberate currency devaluations as a policy tool to promote and sustain fish product exports. No information could be obtained to confirm this allegation of a deliberate policy; however, as the following tabulation indicates, the nominal value of the Icelandic krona has fallen dramatically in recent years vis-a-vis the U.S. dollar (data from the International Monetary Fund, 1979=100):

<u>Year</u>	<u>Nominal</u>	<u>Real</u>
1979-----	3.526	3.526
1980-----	4.798	3.027
1981-----	7.224	3.026
1982-----	12.352	3.469
1983-----	24.843	3.750
1984 <u>1</u> /-----	29.177	3.580

1/ January-March.

In nominal terms, the krona depreciated at about a 50 percent annual rate from 1979 through the first quarter of 1984. However, with an inflation rate (as measured by the consumer price index) of just under the rate of currency depreciation during the time period, the real value of the krona to Icelanders depreciated only very slightly. This is to be expected, since with a steadily growing proportion of the Icelandic economy composed of imports (nearly 40 percent in 1983), nominal devaluation of the currency (intentional or otherwise) will tend to cause an increase in the general price level in the domestic country, ceteris paribus.

#### Denmark

Denmark is the third largest foreign supplier of groundfish to the United States. Total groundfish landings in 1982 amounted to 255,764 metric tons, valued at Dkr 1,639 million (\$197 million).

#### Number of firms and employment

There were in 1982 approximately 14,500 persons employed in harvesting, 11,000 of which were full time. This represents a slight decrease from 14,900 (10,900 full time) employed in 1977. Fishermen in Denmark are well organized; virtually all belong to one of two organizations, the Danish Sea Fishery Association (on the North Sea coast) and the Danish Fishermen's Association (on the Baltic Sea Coast). For trade purposes (Denmark is a member of the EC), 90 percent or more of vessel owners belong to the Danish Fishermen Producers' Organization, which manages the EC price support system for fishery products in Denmark. Fishermen's organizations own and operate most of the

industry's fishmeal operations into which 75 percent (by quantity) of domestic landings by Danish fishermen are channeled. Total domestic landings of all species by Danes amounted to 1.9 million metric tons in 1982; in addition, Danes landed 1.9 million tons in foreign ports (mostly cod). Foreign landings in Danish ports totaled 101,443 tons in 1982.

At the end of 1982, there were 3,262 fishing vessels in Denmark, with a combined gross capacity of 119,155 gross tons. The following tabulation shows the distribution of these vessels by tonnage class, with comparisons with 1977 (OECD data):

<u>Tonnage class</u>	<u>1977</u>		<u>1982</u>	
	<u>Number</u>	<u>Tonnage</u>	<u>Number</u>	<u>Tonnage</u>
1 to 49-----	6,752	67,141	2,786	51,678
50 to 99-----	230	16,636	192	13,825
100 to 149-----	180	24,666	138	18,951
150 to 499--	166	35,851	139	29,283
500 and over--	<u>3</u>	<u>2,000</u>	<u>7</u>	<u>5,418</u>
Total-----	7,331	146,294	3,262	119,155

The number of vessels, particularly those less than 50 tons, declined significantly: a drop of 4,069 vessels, or 56 percent, between 1977 and 1982. However, gross tonnage declined by only 27,139 tons, or 19 percent, indicating an increase in average tonnage per vessel over time. Eighty-five percent of the vessels in 1982 were less than 50 tons, compared with 92 percent in 1977. The average tonnage of Danish vessels increased from 10 tons in 1977 to 18.5 tons in 1982.

Processors of frozen, cured, and fresh fish purchase about 20 percent of the domestic fishermen's landings, accounting for 70 percent of landed value. This fish is purchased primarily at auction, with little direct sale to such processing firms. Concentration on the buying side is high, with a very few firms accounting for most production and exporting activity.

Denmark, like many North Atlantic fish-producing nations, is noted for high quality fish products. This is of prime importance in the industry, as most of the catch is marketed in highly competitive world markets. The importance placed on maintaining quality is reflected in the pervasive role played by the powerful Ministry of Fisheries' Inspection Service, which enforces strict regulations governing fish handling and marketing: groundfish must be gutted before landing; all vessels but very small ones must ice their fish; all processing facilities must pass inspection and be licensed; and fish landings are graded according to their planned product form--top quality for fresh, lesser quality for further processing, lowest for fish meal. The result has been a reputation for top quality groundfish products worldwide, including in the United States.

#### Production

There are four principal fishing areas off the Danish coast. Approximately 50 percent of the Danish catch is harvested in the North Sea.

Two straits, Skagerrak (between Denmark and Norway) and Kattegat (between Denmark and Sweden), account for another 20 and 10 percent, respectively, of the catch. The Baltic Sea provides an additional 15 percent of the total Danish catch. Scattered other areas account for the remaining 5 percent of the total catch.

Total landings of all species by Danish fishermen in domestic ports totaled 1.9 million metric tons, valued at D.Kr. 3,289 million (\$395 million) in 1982, up 12 percent by quantity and 69 percent by value from the 1.69 million metric tons, valued at D.Kr. 1,950 million (\$371 million) landed in 1979. Danish fishermen also landed 12 percent more volume of fish in foreign ports in 1982 than in 1979, from 1.7 million tons to 1.9 million tons; and foreign vessels landed 11 percent more fish in Danish ports, 2.0 million tons in 1982 compared with 1.8 million tons in 1979.

Of the species harvested for human consumption, cod is the most commercially important species, leading in both quantity (190,329 tons in 1982, or 40 percent of the 1982 catch) and value (D.Kr. 1,210 million, or 49 percent of the 1982 catch). Flatfish are next, with a 1982 volume of 38,229 tons (8 percent of the total), valued at D.Kr. 289 million, (12 percent of the total). Haddock landings totaled 25,019 tons in 1982 (5 percent), valued at D.Kr. 150 million (6 percent). Finally, the pollock harvest amounted to 9,980 tons in 1982 (2 percent), valued at D.Kr. 49 million (2 percent).

The vast majority of Danish fisheries production is exported. In 1982, net exports of fish products totaled 391,640 metric tons, valued at D.Kr. 5,018 million (\$602 million). This represents a decrease in quantity of 6 percent and an increase in value of 34 percent from 1980 net exports of 414,812 metric tons, valued at D.Kr. 3,734 million (\$663 million).

The following tabulation presents 1982 net exports of the subject groundfish, by product form (fresh and frozen, only; OECD data, converted to fillet-weight equivalent):

<u>Product form</u>	<u>Quantity</u> <u>(metric tons)</u>	<u>Value</u>
<b>Fresh:</b>		
Cod-----	17,477	\$64,504,584
Haddock-----	260	2,708,103
Pollock-----	(1,502)	(260,549)
Flatfish-----	1,033	15,766,525
<b>Frozen:</b>		
Cod-----	42,585	93,691,373
Haddock-----	2,628	5,808,051
Pollock-----	7,122	10,889,779
Flatfish-----	6,889	22,966,612

The principal markets for these products, by far, are European nations, primarily other EC members. No less than 94 percent of gross exports of fresh groundfish are marketed in Europe; and, with the exception of frozen haddock (of which 24 percent is exported to Europe), at least 73 percent of gross exports of frozen groundfish are marketed in Europe.

### Government involvement in the fisheries

As a member of the EC, Denmark participates in the price-support program for fishery products. While quotas are on occasion instituted by the EC, the primary effect of this participation is to provide for minimum prices paid to fishermen for their catch. As members of the above-mentioned Danish Fishermen Producers' Organization, the liaison between fishermen and the EC, vessel owners pay into a fund which is used to buy up excess fish supplies in order to keep market prices at the target minimum price (the "withdrawal price"). Increasing quantities of fish had to be withdrawn from the market to support prices during 1979-1982, up 240 percent from 3,550 metric tons of fish in 1979 to nearly 12,000 tons in 1982.

When no quotas are set by the EC, as was the case in 1981 and 1982, fishing effort is regulated according to total allowable catches administered by the Danish government. In addition, various gear limitations (e.g., mesh size) and time closures are implemented, according to the fishery.

There are a number of financial assistance programs providing aid to Danish fishermen and processors. The Royal Danish Fisheries Bank provides loans covering up to 85 percent of the construction cost of new fishing vessels and 75 percent of the cost of acquisition of used vessels. The purchase of processing plants and equipment is assisted through loans covering 75 percent of the plant cost and 60 percent of the equipment cost. The loans, varying from 10 to 30 year maturities, are tied to market interest rates. In 1982, D.Kr. 297 million (\$35.6 million) in bonds and D.Kr. 803 million (\$96.4 million) in cash was paid out by the bank in loans to the fishing industry, for a total of D.Kr. 1,100 million (\$132 million). This represents an increase of 31 percent from D.Kr. 838 million (\$117.6 million) paid out (60 percent in cash) by the bank in 1981.

Since 1979, fishermen have been able to install equipment on board vessels (for use in harvesting fish for human consumption only) with the assistance of grants covering 25 percent of equipment costs. Since 1981, this program has been extended to cover equipment designed to improve fuel consumption (e.g. fuel consumption meters, new propellers), for which 40 percent of the cost is covered by grants. In 1981, D.Kr. 16.0 million (\$2.25 million) was appropriated for these grants; this was increased to D.Kr. 23.2 million (\$2.78 million) in 1982.

Assistance to processors includes a grant program providing 25 percent of the cost of projects for developing processing and/or storage of fish products intended for human consumption. In 1982, D.Kr. 17.3 million (\$2.08 million) was spent on this program, an increase of 8 percent from the D.Kr. 16 million (\$2.25 million) spent in 1981.

Processors and marketers of whiting, a less common groundfish than cod or haddock, have been assisted since 1980 by a program designed to promote the use of that species. In 1982, D.Kr. 3.7 million (\$444,000) was expended by the Government to support this program, a 54 percent increase from 1981 funding of D.Kr. 2.4 million (\$337,000).

## Norway

With 2.45 million metric tons of harvested fish (all species) in 1982, Norway ranked seventh among the world's harvesting nations. Norway is the fourth largest foreign supplier of groundfish to the United States, with a 1983 supply of 11.96 million pounds of groundfish (product weight), valued at \$14.7 million.

Number of firms and employment

There were in 1982 a total of 26,733 fishing vessels registered in Norway, an increase of 3 percent from the 25,874 vessels in the industry in 1980. The number of fishing vessels, by tonnage class, is presented in the following tabulation (compiled from official data of the OECD):

<u>Tonnage class</u>	<u>1980</u>		<u>1982</u>	
	<u>Number</u>	<u>Tonnage</u>	<u>Number</u>	<u>Tonnage</u>
1 to 49-----	24,918	135,956	25,940	139,348
50 to 99-----	297	21,418	253	18,275
100 to 149-----	103	12,934	81	10,143
150 to 499-----	461	132,301	374	106,601
500 and over-----	<u>95</u>	<u>75,338</u>	<u>85</u>	<u>67,068</u>
Total-----	25,874	377,947	26,733	341,435

Although the absolute number of vessels rose during 1980-1982, total tonnage fell 10 percent, from 377,947 tons in 1980 to 341,435 tons in 1982, reflecting a shift in vessel size toward smaller vessels. This is in line with a national policy to reduce overall harvesting capacity and to support small-scale fishing in remote regions. Much of the harvesting capacity of the industry, measured in vessel tonnage, is concentrated in the small-scale fishery: 41 percent of total 1982 tonnage was in vessels less than 50 tons. This is the only tonnage class that experienced an increase in total tonnage during 1980-1982.

Employment in Norway's fishing fleet totaled 35,311 persons in 1981, of which 25,289 persons, or 72 percent, were classified as full-time (fishing being a sole or main occupation). This represents a 4 percent increase over total fishing employment of 33,955 persons in 1980, of which 18,755, or 55 percent, were full time.

Production

Total landings of all species of fish in Norway in 1982 totaled 2.45 million metric tons, valued at N.Kr. 3,978 million (\$616 million). Of this total, 38 percent by quantity and 80 percent by value were fish harvested for

human consumption, primarily cod, pollock, haddock, and shrimp. Landings of cod in 1982 totaled 340,000 metric tons, valued at N.Kr. 1,329 million (\$206 million), the single most important food fish in terms of both volume and value.

The following tabulation presents utilization of the total fish catch, by product form, in 1980 and 1982 (compiled from official data of the OECD, in thousands of tons, landed weight):

	<u>1980</u>	<u>1982</u>
Fresh-----	87.9	135.0
Frozen-----	359.0	361.5
Cured-----	318.4	396.5
Canned-----	18.3	18.4
Fishmeal-----	1,608.5	1,485.6
All other-----	<u>8.1</u>	<u>49.5</u>
Total-----	2,400.2	2,446.5

Production of fresh fish increased in both absolute and relative terms during 1980-1982, as did cured production, while production of frozen fish products increased marginally. Fresh-fish production consists mostly of herring, pollock, and farm-raised salmon (the fastest growing fish industry in Norway, averaging an annual growth rate in excess of 50 percent during 1971-82). Cured fish products and frozen fish fillets are processed primarily from cod, haddock, and pollock; landings of cod and pollock increased 21 percent and 24 percent, respectively, during 1980-82, from 281,000 tons of cod and 177,000 tons of pollock in 1980 to 340,000 tons of cod and 220,000 tons of pollock in 1982. Production of canned fish is composed mainly of herring and sardines, landings of which rose from a combined volume of 25,000 metric tons in 1980 to 44,700 tons in 1982, a 79 percent increase. Fishmeal production declined 8 percent during 1980-82 reflecting decreased supplies of sprats (a type of herring) and sandeel, both species used in nonhuman consumption products.

The great bulk of Norway's fish products are exported. Export volume in 1982 totaled 775,000 metric tons (product weight), valued at N.Kr. 5.77 billion (\$894 million). This represents an increase of 4 percent in quantity and 18 percent in value over 1980 exports of 744,000 metric tons, valued at N.Kr. 4.89 billion (\$991 million).

The principal markets for Norway's fresh fish exports in 1982 were Denmark and West Germany; for frozen products, the United Kingdom, the United States, and Nigeria; for cured products, Italy and Brazil; and for canned fish, the United States. In general, frozen groundfish is the principal product form exported to the United States, accounting for 4 percent of Norway's fish export revenues in 1982.

### Government involvement in the fisheries

Norway is not a member of the EC and so exercises independent control over the fish stocks under its jurisdiction. However, many stocks are only partially in Norwegian waters; these stocks must be managed jointly between Norway and the EC, the U.S.S.R., and other nations sharing control over the resources. For the numerous stocks for which Norwegian harvesting capacity is inadequate, foreign fishing rights are allocated based on reciprocal fishing rights for Norwegian vessels in other nation's waters.

Government financial assistance pervades the fishing industry in Norway. The State Fishery Bank provides loans for up to 60 percent of vessel cost at an interest rate in 1982 of 10.5 percent and a 15-year maximum maturity. The Bank also provides grants and loans to processors in remote areas of the country. In special cases, repayments on loan principal and interest may be exempted for up to 10 years. Various price support and cost-reduction programs also exist.

Approximately N.Kr. 960 million (\$150 million) was provided by the national Government to the industry in 1982; the amount actually paid out in 1982 (including loans) totaled N.Kr. 1,018 million (\$158 million). In 1980, N.Kr. 1.4 billion (\$280 million) was appropriated, and actual expenditures totaled N.Kr. 1.1 billion (\$220 million).

The single largest program for the industry is one designed to reduce capacity in harvesting. A total of N.Kr. 361 million (\$56 million) was paid out to reduce capacity (through scrapping or laying up of vessels) in the purse seine, trawler, and sealing fleets. A total of N.Kr. 315 million (\$49 million) was paid out in cost-reducing schemes for bait, gear, and other expenses of the industry. Funds paid out to support fishermen's incomes, through minimum weekly salary supports and unemployment, totaled N.Kr. 119 (\$18 million) in 1982. Other expenditures, totaling N.Kr. 120 million (\$18 million), covered such programs as price supports in pelagic fisheries, longline bait centers, and assistance with oil industry-related problems (such as gear damage resulting from oil industry debris). Loans totaling N.Kr. 54 million (\$8.4 million) were extended to the fish-processing industry in 1982 by the State Fishery Bank.

## U.S. MARKET

The Northeastern United States market area covered in this study comprises the Atlantic Seaboard States from Maine to Virginia, inclusive. The population and, hence, major market areas in the region are concentrated in the metropolitan areas of Boston, New York City, Philadelphia, and Baltimore-Washington. The population of the Northeastern U.S. market was 60 million persons in 1982, or about 26 percent of the total U.S. population. <sup>1/</sup>

There are separate market segments for fresh and for frozen groundfish in the Northeastern region (as well as in other U.S. regions). Although reliable data are not available on consumption by region, the Northeastern U.S. market is believed to be the major U.S. consuming region for the fresh groundfish and scallops of concern in this study. In comparison, the Northeastern region is believed to account for a relatively smaller proportion of the total U.S. consumption of frozen groundfish and scallops, products that are principally supplied by imports.

### Market Profile

Broadly, the markets for groundfish and scallops in the Northeastern United States can be broken into fresh and frozen product markets. Within the fresh market, separate markets exist for whole fish, fish fillets, and scallops. In the frozen market segment, separate markets exist for fillets and for blocks.

The markets for fresh groundfish and scallops differ from those for frozen for several reasons. First, relatively low perishability of frozen groundfish and scallop products allow for their storage, making for more evenly distributed year-round supplies. This in turn leads to generally more stable prices and larger markets. (This stability is not guaranteed, however, as the most recent U.S. recession saw millions of pounds of frozen inventory build up, particularly in exporting countries such as Canada, with consequent fears of "fire-sale" unloading of fish and disrupted markets.) Second, consumers generally perceive frozen groundfish and scallops to be inferior to fresh for reasons related primarily to consumer tastes and product perishability considerations. Therefore, frozen fish prices are almost always lower than fresh fish prices. In addition, frozen groundfish, particularly blocks, can be cut to specified and consistent portions and is less expensive to handle due to reduced spoilage.

For these reasons, fresh groundfish and scallops go through different market channels than frozen. Most fresh whole groundfish are "consumed" by processors who produce fresh and frozen fillets for sale to the ultimate consumer. Smaller amounts of fresh whole groundfish are sold in the retail market as dressed fish. Fresh groundfish fillets and scallops are sold to consumers primarily through the restaurant trade, as well as in fresh fish

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<sup>1/</sup> Statistical Abstract of the United States, 1984, U.S. Department of Commerce.

markets and retail food stores. Frozen groundfish fillets are sold to consumers mostly through chain restaurants such as quick service chains and supermarkets. Some frozen fillets also go into the captive food service market (e.g., institutions, schools, and hospitals) and the full service restaurant trade, as well as seafood restaurants and smaller retail food stores.

The primary product forms of the subject groundfish species marketed in the United States is produced from frozen blocks, a product form of secondary concern in this study. These products, also of secondary concern, include frozen fish sticks and portions, which are cut with saws from 10 to 20 pound frozen blocks of pressed or minced groundfish fillets. They are then cooked, breaded, or otherwise prepared for sale to restaurant chains, supermarkets, and captive food services. Very little block production occurs in the United States because the cost of raw material (fillets) is too high relative to that in other countries; processors find it more profitable to channel domestically-landed fish into higher-value fresh markets whenever possible.

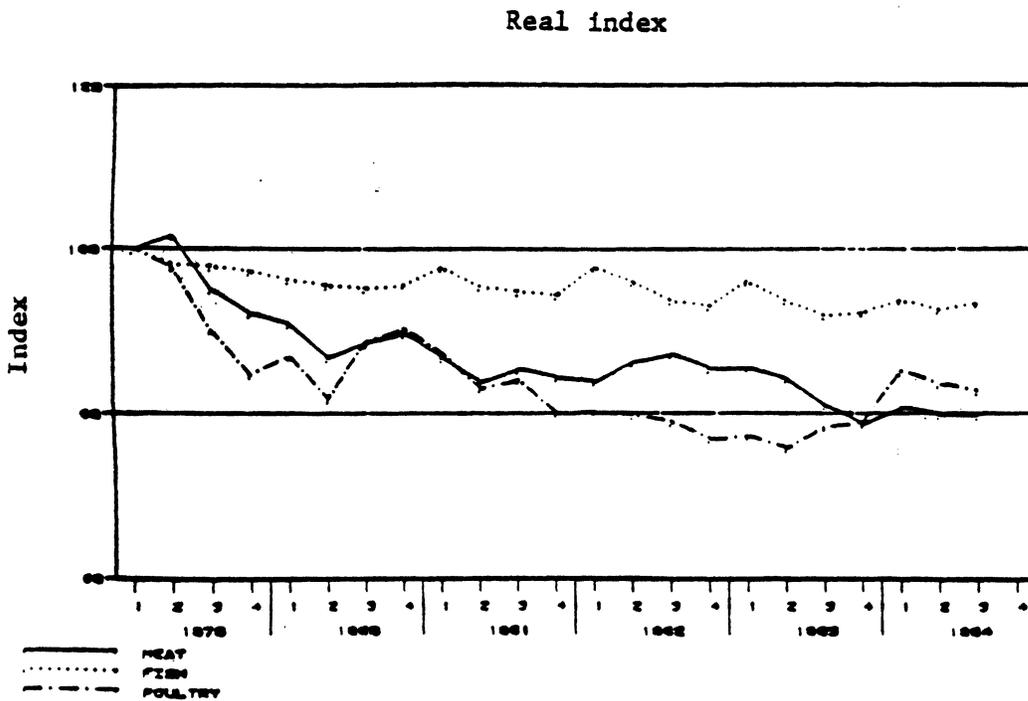
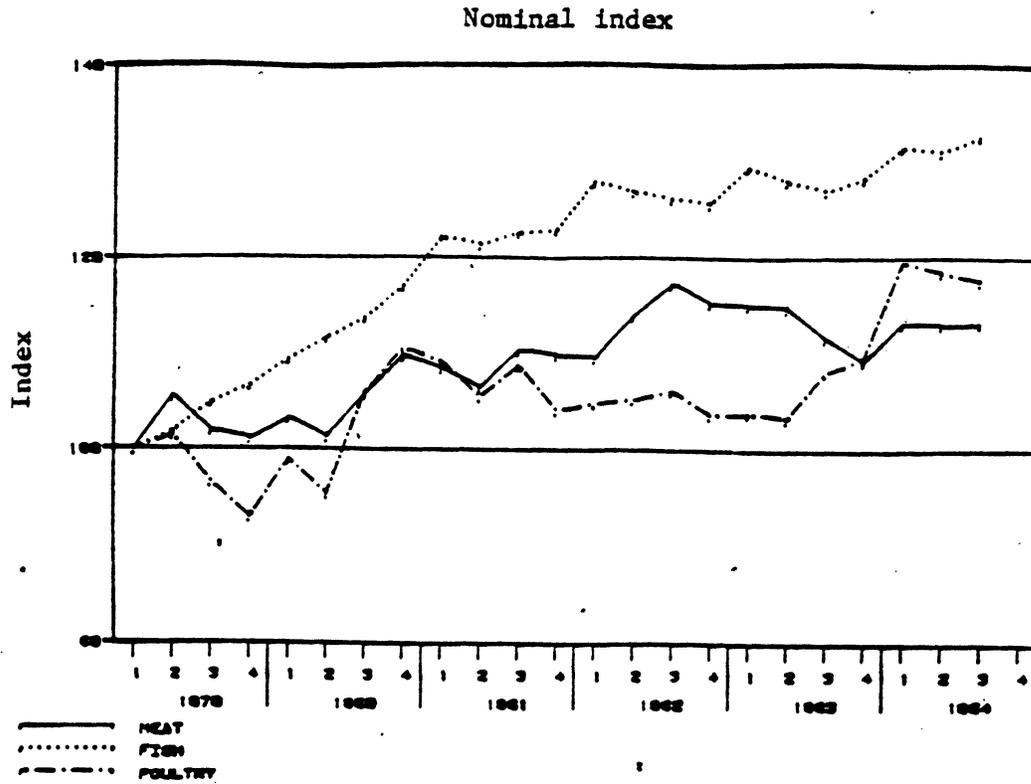
As previously mentioned, the Northeastern U.S. market is believed to be the major consuming region for fresh groundfish and, to a lesser extent, scallops. The proximity to producers, lower prices in the region for fresh product relative to other U.S. regions, perishability of fresh product, and traditional consumer tastes and attitudes indicate that the bulk of domestic production and imports of fresh groundfish and scallops in the region is probably consumed there. For frozen groundfish and scallops, the bulk of the product, principally supplied by imports, likely is ultimately consumed outside the region. This is due to the fact that such products, mainly frozen fillets and blocks, are either further processed into products such as breaded sticks and portions and are marketed nationally as such, or are distributed nationally to restaurant chains and to retail food outlets.

Industry sources indicate that increasing amounts of fresh groundfish fillets that are produced in the Northeastern United States are being marketed to other U.S. regions, mainly in metropolitan areas such as Chicago, Dallas, Denver, and Los Angeles. Such areas generally are experiencing growth in population and income, prices are higher for fresh fish fillets relative to the Northeastern region, and competition from imports of fresh fish fillets is reported to be lower than in the Northeastern region.

Demand for groundfish and scallops, like that for most products, is a function of the product price, the relative prices of substitutes, the number of consumers and the level of their incomes, and consumer habits and tastes.

Figure 7 shows the retail price index for meat, fish, and poultry during the first quarter of 1979 through the second quarter of 1984 (1979=100), both in nominal terms and in real terms (deflated by the Consumer Price Index). In nominal terms, the retail price index for fish increased 33 percent over the period, compared to 18 percent for poultry and 13 percent for meat. In real terms, the retail price index for fish declined by 7 percent, while the index for meat and poultry decreased by 20 percent and 18 percent, respectively. This greater rate of increase in the nominal retail price index for fish and the lower rate of decrease in the real index, both relative to nonfish substitutes, may have slowed growth in consumer demand for fish products, including groundfish and scallops.

Figure 7.--Retail price index, nominal and real, of meat, fish, and poultry, first quarter 1979--second quarter 1984 (first quarter 1979=100).



Source: Compiled from official statistics of the U.S. Department of Commerce.

The population of the Northeastern United States (and, consequently, the pool of potential seafood consumers) has risen only slightly in recent years, from 59 million persons in 1970 to 60 million persons in 1980. <sup>1/</sup> The relatively slow growth in population may have had a limiting effect on aggregate demand for groundfish and scallops in the Northeastern region.

Whole groundfish generally is marketed by individual fishermen or through cooperatives directly to processors or through whole fish dealers who supply processors. Prices to fishermen for whole fish and scallops (ex-vessel prices) throughout the Northeastern U.S. region generally are determined daily based on prices set at auctions for groundfish in New Bedford and Boston, Massachusetts and for scallops in New Bedford. In New Bedford, entire vessel catches are put up, the highest bidder taking the entire load of all species. Prices are bid for individual species (and specified fish sizes, in some cases), with bidders able to take the entire vessel catch simply by raising the bid on a single species or size class. In Boston, buyers bid not for whole vessel loads, as in New Bedford, but for the catches of individual species across vessels. Prices at the ex-vessel level in most other New England ports and many mid-Atlantic ports are set according to either the Boston or New Bedford auction prices, usually less a discount for transportation to one of these two cities, where most fresh groundfish and scallops are processed.

Imported whole groundfish generally is marketed to U.S. processors through the same distribution channels as is the domestic fish. Imported whole groundfish (virtually all from Canada) is trucked to the major processing and distribution centers of the Northeastern region by the Canadian producer (fisherman or processor) and is sold either directly to the U.S. producer or through whole fish dealers or brokers. Prices generally are based on the U.S. auction prices as described above. Prices of imported whole groundfish may be predetermined before the shipment is received by the U.S. processor or the fish may be shipped on consignment; both methods are usually subject to the daily auction price.

Fresh groundfish fillets generally are marketed in the Northeastern region by processors, wholesalers, and brokers. U.S. processors of fresh groundfish fillets frequently act as wholesalers, providing their customers with a complete line of fish that is often augmented with purchases from other processors or from brokers. Processors will often sell direct to retailers, restaurants, and institutions, particularly in the fresh markets. Brokers are used mainly by importers (particularly the smaller ones who are not tied to parent companies in exporting countries) and occasionally by domestic processors, particularly if there is a surplus of domestic fish that must be marketed quickly.

Domestic fillet processors generally base their price for fresh fillets on production costs plus whatever margin the market will bear. If the price of raw fish falls low enough or if there is an oversupply of fresh fillets in the market, resulting in low prices, the processor may decide to freeze fillets for sale in the lower-priced frozen market.

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<sup>1/</sup> Ibid.

Frozen groundfish fillets, the bulk of which are imported, are marketed directly by U.S. fillet processors, wholesalers, and brokers. The major foreign suppliers have established marketing subsidiaries in the United States and maintain cold storage facilities to distribute their products. These subsidiaries may also distribute other product forms such as fresh groundfish fillets and blocks. Prices for frozen groundfish fillets generally are determined by contract or based on spot market conditions.

Groundfish blocks generally are marketed directly by the major foreign producing firms to U.S. converters, who are dependent on imports for virtually all of their supply of raw material. Prices for blocks, as with frozen fillets, may be set by contract or based on a spot market.

Scallops are marketed directly by processors, through wholesalers, or by brokers, the latter being the predominant distribution channel for imported product. Scallops are a high-demand item, and less importance is placed on the origin of the product than is the case with groundfish. Prices generally are based on supply conditions, as scallops are a relatively scarce commodity.

#### Consumption

Northeastern U.S. annual apparent consumption of the subject whole, fresh groundfish increased irregularly from 307 million pounds in 1979 to 392 million pounds in 1983 (table 51). Such consumption principally represents the use of raw material (landings) by processors of groundfish fillets; a small amount of dressed fish consumption is also included. During 1979-83, the share of consumption held by imports more than doubled, from 4 percent in 1979 to 10 percent in 1983.

Consumption of whole, fresh flatfish, the principal groundfish species covered, increased from 123 million pounds in 1979 to 180 million pounds in 1983, or by 46 percent (table 51). The annual share of consumption supplied by imports remained steady at 2 to 3 percent during the period, as domestic landings provided for most of the increase in consumption.

Consumption of whole, fresh cod in the Northeastern United States increased from 101 million pounds in 1979 to 124 million pounds in 1983, or by 23 percent (table 51). The share of consumption supplied by imports increased substantially from 3 percent in 1979 to 10 percent in 1983.

Consumption of whole, fresh haddock and pollock in the Northeastern United States during 1979-83 ranged from 83 million pounds in 1979 to 109 million pounds in 1981 (table 51). The share of consumption supplied by imports increased substantially from 8 percent in 1979 to 26 percent in 1983.

Northeastern U.S. consumption of the subject frozen whole groundfish is taken to be the same as imports, as virtually all domestically produced (landed) whole groundfish is consumed fresh (principally by fillet processors), and exports are believed to be negligible. Northeastern U.S. imports of whole, frozen groundfish decreased from 5 million pounds in 1979 to 3 million pounds in 1983 (table 65 in the section on U.S. imports further in the report).

Table 51.--Whole, fresh groundfish: Northeastern U.S. production, imports for consumption, and apparent consumption, by species, 1979-83 <sup>1/</sup>

Year and species	Production <sup>2/</sup>	Imports	Apparent consumption	Ratio of imports to apparent consumption
	1,000 pounds			Percent
1979:				
Flatfish-----	120,613	2,839	123,452	2
Cod-----	97,793	3,186	100,979	3
Haddock and pollock-----	76,146	3/ 6,544	82,690	8
Total-----	294,552	12,569	307,121	4
1980:				
Flatfish-----	137,901	2,340	140,241	2
Cod-----	118,244	3,146	121,390	3
Haddock and pollock-----	94,840	3/ 7,698	102,538	8
Total-----	350,985	13,183	364,168	4
1981:				
Flatfish-----	127,821	3,630	131,451	3
Cod-----	100,461	7,101	107,562	7
Haddock and pollock-----	92,653	3/ 15,846	108,499	15
Total-----	320,935	26,577	347,512	8
1982:				
Flatfish-----	144,427	4,098	148,525	3
Cod-----	104,436	8,256	112,692	7
Haddock and pollock-----	76,183	3/ 18,043	94,226	19
Total-----	325,046	30,397	355,443	9
1983:				
Flatfish-----	175,287	5,031	180,318	3
Cod-----	112,472	12,020	124,492	10
Haddock and pollock-----	64,379	3/ 22,877	87,256	26
Total-----	352,138	39,928	392,066	10

<sup>1/</sup> Data on exports are not available; however, exports are believed to be negligible compared with domestic production.

<sup>2/</sup> Landings.

<sup>3/</sup> Includes cusk and hake.

Source: Compiled from official statistics of the U.S. Department of Commerce.

Note.--Because of rounding, figures may not add to the totals shown.

Northeastern U.S. apparent consumption of the fresh groundfish fillets of concern in this study showed no discernible trend during 1979-83, ranging from 76 million pounds in 1982 to 87 million pounds in 1983 (table 52). The share of such consumption provided by imports rose significantly from 12 percent in 1979 to 21 percent in 1983, as production generally declined and imports rose during the period.

Northeastern U.S. apparent consumption of fresh cod fillets increased from 28 million pounds in 1979 to 37 million pounds in 1983, or by 30 percent (table 52). The increase was the result of a rise in both domestic production and imports during the period. The share of consumption supplied by imports increased during the period from 20 percent in 1979 to 27 percent in 1983.

Apparent consumption of fresh flatfish fillets in the Northeastern United States fluctuated during 1979-83, ranging from 23 million pounds in 1982 to 34 million pounds in 1981 (table 52). The share of consumption supplied by imports increased from 3 percent in 1979 to 7 percent in 1981 and 1982 before falling to 5 percent in 1983.

Northeastern U.S. apparent consumption of fresh haddock and pollock fillets decreased irregularly from 24 million pounds in 1979 to 20 million pounds in 1983 (table 52). The share of consumption supplied by imports increased from 13 percent in 1979 to 30 percent in 1983, as production decreased and imports increased during the period.

Apparent consumption of the subject frozen groundfish fillets in the Northeastern United States increased irregularly during 1979-83, rising from 229 million pounds in 1979 to 256 million pounds in 1983 (table 53). The share of such consumption supplied by imports ranged from 89 percent in 1980 to 100 percent in 1982. This consumption is probably overstated, as the bulk of frozen groundfish fillets are believed to be consumed outside of the Northeastern region. (Data are not available on geographic distribution of groundfish and scallop consumption).

Northeastern U.S. apparent consumption of frozen cod fillets increased from 133 million pounds in 1979 to 157 million pounds in 1983, or by 18 percent (table 53). The share of apparent consumption supplied by imports ranged from 87 percent in 1980 to 105 percent in 1982 and 1983.

Apparent consumption of frozen haddock and pollock fillets in the Northeastern United States showed no discernible trend during 1979-83, ranging from 52 million pounds in 1981 to 59 million pounds in 1983 (table 53). The share of consumption supplied by imports also fluctuated during the period and ranged from 83 percent in 1981 to 94 percent in 1982.

Northeastern U.S. apparent consumption of frozen flatfish fillets fluctuated during 1979-83, ranging from 27 million pounds in 1980 to 52 million pounds in 1981 (table 53). Imports accounted for a declining share of consumption during the period, falling from 101 percent in 1979 to 73 percent in 1983, as inventories were drawn down during 1981-83.

Table 52.--Fresh groundfish fillets: Northeastern U.S. production, imports for consumption, and apparent consumption, by species, 1979-83 <sup>1/</sup>

Year and species	Production	Imports	Apparent consumption	Ratio of imports to apparent consumption
	1,000 pounds			Percent
1979:				
Flatfish-----	30,360	977	31,337	3
Cod-----	22,490	5,778	28,268	20
Haddock and Pollock-----	20,802	3,223	24,025	13
Total-----	73,653	9,979	83,632	12
1980:				
Flatfish-----	29,429	1,273	30,702	4
Cod-----	23,368	4,981	28,349	18
Haddock and Pollock-----	19,295	3,336	22,631	15
Total-----	72,092	9,591	81,683	12
1981:				
Flatfish-----	31,871	2,550	34,421	7
Cod-----	21,104	7,164	28,268	25
Haddock and Pollock-----	18,624	5,657	24,281	23
Total-----	71,600	15,371	86,971	18
1982:				
Flatfish-----	21,796	1,683	23,479	7
Cod-----	23,020	8,263	31,283	26
Haddock and Pollock-----	16,578	4,918	21,496	23
Total-----	61,394	14,864	76,258	19
1983:				
Flatfish-----	24,105	1,298	25,403	5
Cod-----	26,834	9,891	36,725	27
Haddock and Pollock-----	14,422	6,077	20,499	30
Total-----	65,361	17,266	82,627	21

<sup>1/</sup> Data on exports are not available; however, exports are believed to be negligible compared with domestic production.

Source: Compiled from official statistics of the U.S. Department of Commerce.

Note.--Because of rounding, figures may not add to the totals shown.

Table 53.--Frozen groundfish fillets: Northeastern U.S. production, beginning inventories, imports for consumption, ending inventories, and apparent consumption, by species, 1979-83 <sup>1/</sup>

Year and species	Production	Beginning inventories <sup>2/</sup>	Imports	Ending inventories <sup>2/</sup>	Apparent consumption	Ratio of imports to apparent consumption
	1,000 pounds					Percent
1979:						
Flatfish--	3,616	6,979	42,630	11,140	42,085	101
Cod-----	6,230	19,024	132,438	25,041	132,651	100
Haddock and pollock----	6,794	9,580	49,583	11,287	54,670	91
Total--	16,641	35,583	224,650	47,468	229,406	98
1980:						
Flatfish--	3,183	11,140	29,838	17,344	26,817	111
Cod-----	5,101	25,041	120,240	11,854	138,528	87
Haddock and pollock----	6,202	11,287	45,627	9,474	53,642	85
Total--	14,486	47,468	195,737	38,672	219,199	89
1981:						
Flatfish--	3,551	17,344	47,750	16,193	52,452	91
Cod-----	13,224	11,854	137,080	13,647	148,511	92
Haddock and pollock----	7,673	9,474	42,601	8,134	51,614	83
Total--	24,448	38,672	227,472	37,974	252,618	90
1982:						
Flatfish--	3,493	16,193	38,011	14,699	42,998	88
Cod-----	3,332	13,647	151,635	24,530	144,084	105
Haddock and pollock----	4,613	8,134	52,158	9,647	55,258	94
Total--	11,438	37,974	241,822	48,876	242,358	100
1983:						
Flatfish--	6,156	14,699	30,271	9,857	41,269	73
Cod-----	3,664	24,530	164,167	35,817	156,544	105
Haddock and pollock----	6,119	9,647	51,438	8,589	58,615	88
Total--	15,939	48,876	245,885	54,263	256,437	96

<sup>1/</sup> Data on exports are not available; however, exports are believed to be negligible compared with domestic production.

<sup>2/</sup> Estimated by the staff of the U.S. International Trade Commission.

Source: Compiled from official statistics of the U.S. Department of Commerce, except as noted.

Note.--Because of rounding, figures may not add to the totals shown.

Northeastern U.S. apparent consumption of frozen blocks of the groundfish under review showed no discernible trend during 1979-83, ranging from 312 million pounds in 1979 to 238 million pounds in 1982 (table 54). The share of such consumption supplied by imports increased from 97 percent in 1979 to 107 percent in 1983. Such consumption indicates the utilization of blocks by U.S. converters in the Northeastern region to produce further-processed groundfish products such as breaded sticks and portions. The bulk of the products produced from blocks are believed to be consumed outside the Northeastern region.

Apparent consumption of scallops in the Northeastern United States decreased from 54 million pounds in 1979 to 44 million pounds in 1982 before rising to 47 million pounds in 1983 (table 55). The general downward trend in such consumption resulted mainly from decreased Northeastern U.S. landings during the period because of eroding scallop resources. The share of consumption provided by imports ranged from 40 percent in 1980 to 53 percent in 1981 and 1983.

Data are not available on per capita consumption of groundfish and scallops in the Northeastern U.S. market. However, the following tabulation shows total U.S. per capita consumption of certain fish and shellfish during 1979-83 (compiled from official statistics of the National Marine Fisheries Service, in pounds):

<u>Year</u>	<u>Fresh and frozen fish</u>	<u>Fillets and steaks</u>	<u>Total fish and shellfish</u>
1979-----	7.8	2.7	13.0
1980-----	8.0	2.6	12.8
1981-----	7.8	2.7	12.9
1982-----	7.7	2.7	12.3
1983-----	8.0	2.9	12.9

U.S. per capita consumption of all fish and shellfish was relatively static during the period, ranging from 12.3 pounds in 1982 to 13.0 pounds in 1979. Per capita consumption of fresh and frozen fish ranged from 7.7 to 8.0 pounds and per capita consumption of fillets and steaks from 2.6 to 2.9 pounds during the period.

#### Exports

U.S. exports of groundfish and scallops are believed to be negligible compared with domestic production. In the fresh market, demand generally is greater than supply for whole groundfish, groundfish fillets, and scallops. Industry sources report that a small amount of fresh, whole groundfish is exported to Canada owing to seasonal fluctuations in supply and demand. Also, limited exports of fresh groundfish fillets are reported to be sent to major Canadian metropolitan areas by U.S. producers.

U.S. exports of frozen groundfish may be more significant than those of fresh groundfish. However, it is believed that the bulk of exports of frozen groundfish are accounted for by shifts in inventories of foreign-produced

Table 54.--Groundfish blocks: Northeastern U.S. production, beginning inventories, imports for consumption, ending inventories, and apparent consumption, 1979-83 1/

Year	Production	Beginning inventories <u>2/</u>	Imports	Ending inventories <u>2/</u>	Apparent consumption	Ratio of imports to apparent consumption
-----1,000 pounds-----						Percent
1979-----	4,535	49,434	301,642	43,599	312,012	97
1980-----	1,042	43,599	254,204	27,676	271,169	94
1981-----	783	27,676	276,970	24,216	281,213	98
1982-----	2,500	24,216	236,628	25,639	237,705	100
1983-----	3,141	25,639	303,490	49,810	282,460	107

1/ Data are not available for exports of domestic merchandise; however, exports are believed to be negligible compared with domestic production.

2/ Estimated by the staff of the U.S. International Trade Commission.

Source: Compiled from official statistics of the U.S. Department of Commerce, except as noted.

Table 55.--Scallops: Northeastern U.S. production, beginning inventories, imports for consumption, ending inventories, and apparent consumption, 1979-83 1/

Year	Production <u>2/</u>	Beginning inventories <u>3/</u>	Imports	Ending inventories <u>3/</u>	Apparent consumption	Ratio of imports to apparent consumption
-----1,000 pounds-----						Percent
1979-----	31,325	3,591	23,779	4,709	53,986	44
1980-----	27,899	4,709	19,759	2,420	49,947	40
1981-----	25,941	2,420	24,412	6,729	46,044	53
1982-----	21,497	6,729	19,353	3,703	43,876	44
1983-----	21,730	3,703	24,520	3,424	46,529	53

1/ Export data are not available; however, exports are believed to be negligible compared with domestic production.

2/ Landings.

3/ Estimated by the staff of the U.S. International Trade Commission.

Source: Compiled from official statistics of the U.S. Department of Commerce, except as noted.

fillets and blocks held by major foreign producers' subsidiaries in the U.S. market.

Data on U.S. exports of groundfish and scallops are not available. Levels of Canadian imports of groundfish and scallops from the United States are discussed in the Canadian market section.

### Imports

Total U.S. imports of the groundfish covered by this investigation <sup>1/</sup> increased from 268 million pounds, valued at \$309 million, in 1979 to 332 million pounds, valued at \$396 million, in 1983 (table 56). The major supplier during the period was Canada. U.S. groundfish imports from Canada increased from 125 million pounds, valued at \$132 million, in 1979 to 194 million pounds, valued at \$207 million, in 1983 and accounted for 56 percent of the quantity and 51 percent of the value of the total during the period. Iceland was the second leading foreign supplier of the subject groundfish to the United States during 1979-83. U.S. imports of the subject groundfish from Iceland decreased from 98 million pounds, valued at \$123 million, in 1979 to 68 million pounds, valued at \$96 million, in 1983. This accounted for 27 percent of the quantity and 30 percent of the value of the U.S. total during the period. Other leading suppliers include Denmark (6 percent of the quantity and 7 percent of the value), Norway (4 percent of the quantity and 3 percent of the value), and Japan (4 percent of the quantity and 3 percent of the value).

The great bulk of U.S. imports of groundfish enters through Customs districts in the Northeastern United States. <sup>2/</sup> During 1979-83, such imports into these districts increased from 252 million pounds, valued at \$294 million, in 1979 to 306 million pounds, valued at \$372 million, in 1983 (table 57). During this period, these imports accounted for 93 percent of the quantity and 95 percent of the value of total U.S. imports of groundfish.

The principal product form for U.S. imports of the subject groundfish is frozen fillets. U.S. imports of frozen groundfish fillets into the Northeastern region increased from 225 million pounds, valued at \$271 million, in 1979 to 246 million pounds, valued at \$330 million, in 1983 (table 57).

During 1979-83, these imports consisted principally of cod. U.S. imports of frozen cod fillets in the Northeastern region increased from 132 million pounds, valued at \$160 million, in 1979 to 164 million pounds, valued at \$220 million, in 1983, or by 24 percent in quantity and 37 percent in value (table 58). Canada was the major supplier, with imports from that country increasing steadily from 42 million pounds, valued at \$43 million, in 1979 to 92 million pounds, valued at \$116 million, in 1983, or by 121 percent in quantity and 170 percent in value (table 59). Canada's share of the

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<sup>1/</sup> Fresh and frozen, whole and fillets. Blocks are discussed separately.

<sup>2/</sup> These districts are Portland, Maine; St. Alban's, Vermont; Boston, Massachusetts; Providence, Rhode Island; Bridgeport, Connecticut; Ogdensburg, New York; Buffalo, New York; New York City; Philadelphia, Pennsylvania; Baltimore, Maryland; Washington, D.C.; and, Norfolk, Virginia.

Table 56.--Groundfish: U.S. imports for consumption, by principal sources, 1979-83 <sup>1/</sup>

Source	1979	1980	1981	1982	1983
Quantity (1,000 pounds)					
Canada	124,870	114,544	178,273	193,624	194,180
Iceland	97,890	84,740	70,407	62,485	68,324
Denmark	12,839	9,333	8,986	21,699	30,992
Norway	12,844	12,197	10,868	12,259	11,962
Japan	8,496	8,780	11,062	13,807	11,144
All other	10,910	8,427	8,536	10,513	15,364
Total	267,849	238,021	288,132	314,387	331,966
Value (1,000 dollars)					
Canada	131,501	122,633	199,234	211,987	207,381
Iceland	122,960	110,960	97,052	89,270	95,855
Denmark	16,625	13,221	12,752	30,553	45,661
Norway	15,003	16,108	14,140	15,798	14,658
Japan	6,877	6,361	9,178	12,120	10,968
All other	16,080	11,959	13,297	16,099	21,630
Total	309,046	281,242	345,653	375,827	396,153
Unit value (per pound)					
Canada	\$1.05	\$1.07	\$1.12	\$1.09	\$1.07
Iceland	1.26	1.31	1.38	1.43	1.40
Denmark	1.29	1.42	1.42	1.41	1.47
Norway	1.17	1.32	1.30	1.29	1.23
Japan	.81	.72	.83	.88	.98
All other	1.47	1.42	1.56	1.53	1.41
Average	1.15	1.18	1.20	1.20	1.19

<sup>1/</sup> Fresh and frozen whole groundfish and groundfish fillets (TSUSA items 110.1585-.1597, 110.3560, 110.3565, 110.5000, 110.5545-.5570, 110.7033, and 110.7039).

Source: Compiled from official statistics of the U.S. Department of Commerce.

Table 57.--Groundfish: U.S. imports for consumption, by product forms and by regions 1979-83 <sup>1/</sup>

Product form and region	1979	1980	1981	1982	1983
Quantity (1,000 pounds)					
Whole:					
Fresh:					
Northeast-----	12,569	13,183	26,577	30,397	39,928
Other-----	1,198	804	829	6,213	7,385
Total-----	13,767	13,987	27,406	36,610	47,313
Frozen:					
Northeast-----	5,000	2,803	3,090	3,380	2,502
Other-----	2,748	2,133	1,114	1,137	1,519
Total-----	7,748	4,937	4,204	4,517	4,021
Fillets:					
Fresh:					
Northeast-----	9,979	9,591	15,371	14,864	17,266
Other-----	2,675	2,848	2,215	2,360	2,460
Total-----	12,654	12,438	17,586	17,224	19,726
Frozen:					
Northeast-----	224,650	195,737	227,472	241,822	245,885
Other-----	9,031	10,923	11,463	14,215	15,022
Total-----	233,681	206,660	238,936	256,037	260,907
Total:					
Northeast-----	252,198	221,313	272,510	290,462	305,581
Other-----	15,651	16,708	15,621	23,925	26,385
Total-----	267,849	238,021	288,132	314,387	331,966
Value (1,000 dollars)					
Whole:					
Fresh:					
Northeast-----	4,530	5,212	11,539	13,806	18,349
Other-----	551	337	504	979	1,384
Total-----	5,082	5,549	12,044	14,785	19,733
Frozen:					
Northeast-----	7,554	3,672	5,298	4,701	3,044
Other-----	2,411	2,576	1,477	1,479	1,946
Total-----	9,964	6,248	6,775	6,180	4,990
Fillets:					
Fresh:					
Northeast-----	11,191	10,917	18,673	18,157	20,827
Other-----	3,126	3,609	2,998	3,178	3,604
Total-----	14,317	14,526	21,671	21,335	24,431
Frozen:					
Northeast-----	270,829	245,029	294,129	319,640	329,681
Other-----	8,854	9,889	11,034	13,887	17,318
Total-----	279,683	254,918	305,163	333,527	346,999
Total:					
Northeast-----	294,104	264,830	329,639	356,304	371,901
Other-----	14,941	16,411	16,014	19,523	24,252
Total-----	309,046	281,242	345,653	375,827	396,153

<sup>1/</sup> TSUSA items 110.1585-.1597, 110.3560, 110.3565, 110.5000, 110.5545-.5570, 110.7033, and 110.7039

<sup>2/</sup> Northeast Customs districts include Portland, ME; St. Alban's, VT; Boston, MA; Providence, RI; Bridgeport, CT; Ogdensburg, NY; Buffalo, NY; New York City; Philadelphia, PA; Baltimore, MD; Washington, DC; and, Norfolk, VA.

Source: Compiled from official statistics of the U.S. Department of Commerce.

Note.--Because of rounding, figures may not add to the totals shown.

Table 58.--Groundfish fillets: Northeastern U.S. imports for consumption, by product forms and by species, 1979-83

Product form and species	1979	1980	1981	1982	1983
Quantity (1,000 pounds)					
<b>Fresh:</b>					
Cod <u>1</u> /-----	5,778	4,981	7,164	8,263	9,891
Haddock and pollock <u>2</u> /--	3,223	3,336	5,657	4,918	6,077
Flatfish <u>3</u> /-----	977	1,273	2,550	1,683	1,298
<b>Total</b> -----	<b>9,978</b>	<b>9,590</b>	<b>15,371</b>	<b>14,864</b>	<b>17,266</b>
<b>Frozen:</b>					
Cod <u>4</u> /-----	132,438	120,240	137,080	151,635	164,167
Haddock and pollock <u>5</u> /--	49,583	45,627	42,601	52,158	51,438
Flatfish <u>6</u> /-----	42,630	29,838	47,750	38,011	30,271
<b>Total</b> -----	<b>224,651</b>	<b>195,705</b>	<b>227,431</b>	<b>241,804</b>	<b>245,876</b>
Value (1,000 dollars)					
<b>Fresh:</b>					
Cod <u>1</u> /-----	6,335	5,516	8,351	9,679	11,312
Haddock and pollock <u>2</u> /--	3,592	3,790	6,546	5,818	7,289
Flatfish <u>3</u> /-----	1,265	1,611	3,776	2,660	2,226
<b>Total</b> -----	<b>11,192</b>	<b>10,917</b>	<b>18,673</b>	<b>18,157</b>	<b>20,827</b>
<b>Frozen:</b>					
Cod <u>4</u> /-----	160,048	151,880	178,049	201,950	219,834
Haddock and pollock <u>5</u> /--	53,031	52,668	49,021	61,430	63,489
Flatfish <u>6</u> /-----	57,750	40,452	67,015	56,247	46,350
<b>Total</b> -----	<b>270,829</b>	<b>245,000</b>	<b>294,085</b>	<b>319,627</b>	<b>329,673</b>
Unit value (per pound)					
<b>Fresh:</b>					
Cod <u>1</u> /-----	\$1.10	\$1.11	\$1.16	\$1.17	\$1.13
Haddock and pollock <u>2</u> /--	1.11	1.14	1.16	1.18	1.20
Flatfish <u>3</u> /-----	1.29	1.27	1.48	1.58	1.71
<b>Average</b> -----	<b>1.12</b>	<b>1.14</b>	<b>1.21</b>	<b>1.22</b>	<b>1.21</b>
<b>Frozen:</b>					
Cod <u>4</u> /-----	1.21	1.26	1.30	1.33	1.34
Haddock and pollock <u>5</u> /--	1.07	1.15	1.15	1.18	1.23
Flatfish <u>6</u> /-----	1.35	1.36	1.40	1.48	1.53
<b>Average</b> -----	<b>1.21</b>	<b>1.25</b>	<b>1.29</b>	<b>1.32</b>	<b>1.34</b>

1/ TSUSA item 110.5545.

2/ TSUSA item 110.5565; also includes cusk and hake.

3/ TSUSA item 110.7033.

4/ TSUSA item 110.5550.

5/ TSUSA item 110.5570; also includes cusk and hake.

6/ TSUSA item 110.7039.

Source: Compiled from official statistics of the U.S. Department of Commerce.

Note.--Because of rounding, figures may not add to the totals shown.

Table 59.--Frozen cod fillets: 1/ Northeastern U.S. imports for consumption, by principal sources, 1979-83

Source	1979	1980	1981	1982	1983
Quantity (1,000 pounds)					
Canada	41,700	42,447	67,760	87,819	91,977
Iceland	73,198	65,457	56,165	43,990	42,552
Denmark	7,495	4,373	5,242	10,745	19,987
Norway	7,472	6,258	4,959	6,139	7,416
All other	2,573	1,705	2,954	2,942	2,235
Total	132,438	120,240	137,080	151,635	164,167
Value (1,000 dollars)					
Canada	43,025	46,681	81,015	107,130	116,324
Iceland	95,574	88,899	79,411	66,227	60,450
Denmark	9,622	5,893	7,451	16,568	30,460
Norway	9,340	8,432	6,779	8,470	9,817
All other	2,487	1,975	3,393	3,555	2,783
Total	160,048	151,880	178,049	201,950	219,834
Unit value (per pound)					
Canada	\$1.03	\$1.10	\$1.20	\$1.22	\$1.26
Iceland	1.31	1.36	1.41	1.51	1.42
Denmark	1.28	1.35	1.42	1.54	1.52
Norway	1.25	1.16	1.37	1.38	1.32
All other	.97	1.16	1.15	1.21	1.25
Average	1.21	1.26	1.30	1.33	1.34

1/ TSUSA item 110.5550

Source: Compiled from official statistics of the U.S. Department of Commerce.

Note.--Because of rounding, figures may not add to the totals shown.

Northeastern U.S. total increased in terms of quantity from 31 percent in 1979 to 56 percent in 1983 and in terms of value from 27 percent in 1979 to 53 percent in 1983. Northeastern U.S. imports of frozen cod fillets from Iceland, the second leading supplier, declined steadily from 73 million pounds, valued at \$96 million, in 1979 to 43 million pounds, valued at \$60 million, in 1983, or by 42 percent in quantity and 37 percent in value. The share of the Northeastern U.S. total supplied by Iceland declined in terms of quantity from 55 percent in 1979 to 26 percent in 1983 and in terms of value from 60 percent in 1979 to 27 percent in 1983. The decrease was mainly attributable to a decline in cod stocks in Iceland's waters and the resulting restrictions on harvests by that country. Northeastern U.S. imports of frozen cod fillets from Denmark, the next leading supplier, increased irregularly from 7 million pounds, valued at \$10 million, in 1979 to 20 million pounds, valued at \$30 million in 1983; Denmark's share of the Northeastern U.S. total

increased in terms of quantity from 6 percent in 1979 to 12 percent in 1983 and in terms of value from 6 percent in 1979 to 14 percent in 1983. The subject imports from Norway, the remaining leading supplier, were relatively constant throughout the period, ranging from 5 million pounds, valued at \$7 million, in 1981 to 7 million pounds, valued at \$10 million, in 1983.

U.S. imports of frozen haddock and pollock fillets 1/ into the Northeastern United States showed no discernible trend during the period under review, ranging from 43 million pounds, valued at \$49 million, in 1981 to 52 million pounds, valued at \$61 million, in 1982 (table 60). Iceland was the principal supplier, followed by Canada, Denmark, and Norway. No major shifts occurred among these suppliers during 1979-83, as Northeastern U.S. imports from each country fluctuated.

Northeastern U.S. imports of frozen flatfish fillets decreased from 43 million pounds, valued at \$58 million, in 1979 to 30 million pounds, valued at \$46 million, in 1983 (table 61). Canada, by far, was the principal supplier, with such imports from that country ranging from 25 million pounds, valued at \$36 million, in 1980 to 43 million pounds, valued at \$62 million, in 1981. Such imports accounted for 85 percent of the quantity and 88 percent of the value of the Northeastern U.S. total during 1979-83. Other major suppliers include the Netherlands, Japan, and, more recently, South Korea.

U.S. imports of fresh fillets of the subject groundfish into the Northeastern United States are of a much smaller magnitude than frozen fillets, but have been increasing more rapidly. Northeastern U.S. imports of the subject fresh groundfish fillets increased from 10 million pounds, valued at \$11 million, in 1979 to 17 million pounds, valued at \$21 million, in 1983, or by 173 percent in quantity and 86 percent in value (table 58).

During 1979-83, cod was the principal species of fresh fillet imported into the Northeastern United States, with such imports increasing from 6 million pounds, valued at \$6 million, in 1979 to 10 million pounds, valued at \$11 million, in 1983; this represented an increase of 71 percent in quantity and 79 percent in value during the period (table 62). Nearly all of such imports were provided by Canada.

Northeastern U.S. imports of fresh haddock and pollock fillets 1/ increased from 3 million pounds, valued at \$4 million, in 1979 to 6 million pounds, valued at \$7 million, in 1983 (table 63). Canada supplied 90 percent of the quantity and value of such imports; Iceland supplied virtually all of the remainder.

U.S. imports of fresh flatfish fillets into the Northeastern United States increased from 1 million pounds, valued at \$1 million, in 1979 to 3 million pounds, valued at \$4 million, in 1981 before falling to 1 million pounds, valued at \$2 million in 1983 (table 64). Virtually all of such imports were supplied by Canada.

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1/ Not reported separately; also includes cusk and hake.

Table 60.--Frozen haddock and pollock fillets: 1/ Northeastern U.S. imports for consumption, by principal sources, 1979-83

Source	1979	1980	1981	1982	1983
Quantity (1,000 pounds)					
Iceland-----	23,568	18,617	13,496	17,131	23,623
Canada-----	17,291	15,958	20,119	16,991	12,125
Denmark-----	4,063	4,611	3,442	10,479	8,706
Norway-----	3,953	5,881	5,154	5,666	3,342
All other-----	708	560	390	1,891	3,642
Total-----	49,583	45,627	42,601	52,158	51,438
Value (1,000 dollars)					
Iceland-----	26,398	21,379	17,035	21,901	32,746
Canada-----	16,302	16,332	20,427	17,565	11,640
Denmark-----	5,045	6,712	4,777	13,270	11,403
Norway-----	4,778	7,623	6,506	6,937	3,693
All other-----	508	622	276	1,757	4,007
Total-----	53,031	52,668	49,021	61,430	63,489
Unit value (per pound)					
Iceland-----	\$1.12	\$1.15	\$1.26	\$1.28	\$1.39
Canada-----	.94	1.02	1.02	1.03	.96
Denmark-----	1.24	1.46	1.39	1.27	1.31
Norway-----	1.21	1.30	1.26	1.22	1.11
All other-----	.72	1.11	.71	.93	1.10
Average-----	1.07	1.15	1.15	1.18	1.23

1/ TSUSA item 110.5570; also includes cusk and hake.

Source: Compiled from official statistics of the U.S. Department of Commerce.

Note.--Because of rounding, figures may not add to the totals shown.

Table 61.--Frozen flatfish fillets: 1/ Northeastern U.S. imports for consumption, by principal sources, 1979-83

Source	1979	1980	1981	1982	1983
Quantity (1,000 pounds)					
Canada-----	35,296	24,989	42,951	32,981	23,685
Netherlands-----	1,305	1,152	927	1,608	1,896
Japan-----	2,289	2,760	2,612	2,256	2,440
Republic of Korea-----	0	0	163	115	1,248
All other-----	3,740	937	1,097	1,051	1,002
Total-----	42,630	29,838	47,750	38,011	30,271
Value (1,000 dollars)					
Canada-----	49,133	35,836	62,316	50,841	38,480
Netherlands-----	1,981	1,829	1,381	2,543	2,836
Japan-----	1,632	1,499	1,750	1,407	1,874
Republic of Korea-----	-	-	190	151	1,858
All other-----	5,004	1,288	1,378	1,305	1,302
Total-----	57,750	40,452	67,015	56,247	46,350
Unit value (per pound)					
Canada-----	\$1.39	\$1.43	\$1.45	\$1.41	\$1.62
Netherlands-----	1.52	1.59	1.49	1.58	1.50
Japan-----	.71	.54	.67	.62	.77
Republic of Korea-----	-	-	1.17	1.31	1.49
All other-----	1.34	1.37	1.26	1.24	1.30
Average-----	1.35	1.36	1.40	1.48	1.53

1/ TSUSA item 110.7039.

Source: Compiled from official statistics of the U.S. Department of Commerce.

Note.--Because of rounding, figures may not add to the totals shown.

Table 62.--Fresh cod fillets: 1/ Northeastern U.S. imports for consumption, by principal sources, 1979-83

Source	1979	1980	1981	1982	1983
Quantity (1,000 pounds)					
Canada-----	5,742	4,948	7,121	8,149	9,508
All other-----	36	33	43	114	383
Total-----	5,778	4,981	7,164	8,263	9,891
Value (1,000 dollars)					
Canada-----	6,277	5,482	8,278	9,553	10,760
All other-----	58	34	73	126	552
Total-----	6,335	5,516	8,351	9,679	11,312
Unit value (per pound)					
Canada-----	\$1.09	\$1.11	\$1.16	\$1.17	\$1.13
All other-----	1.61	1.03	1.70	1.11	1.44
Average-----	1.10	1.11	1.17	1.17	1.14

1/ TSUSA item 110.5545.

Source: Compiled from official statistics of the U.S. Department of Commerce.

Note.--Because of rounding, figures may not add to the totals shown.

Table 63.--Fresh haddock and pollock fillets: 1/ Northeastern U.S. imports for consumption, by principal sources, 1979-83

Source	1979	1980	1981	1982	1983
Quantity (1,000 pounds)					
Canada-----	2,982	3,171	5,614	4,436	4,800
Iceland-----	197	137	28	476	1,273
All other-----	44	28	15	6	4
Total-----	3,223	3,336	5,657	4,918	6,077
Value (1,000 dollars)					
Canada-----	3,284	3,594	6,486	5,250	5,611
Iceland-----	238	170	35	559	1,673
All other-----	70	26	25	9	5
Total-----	3,592	3,790	6,546	5,818	7,289
Unit value (per pound)					
Canada-----	\$1.10	\$1.13	\$1.16	\$1.18	\$1.17
Iceland-----	1.21	1.24	1.25	1.17	1.31
All other-----	1.59	.93	1.67	1.50	1.25
Average-----	1.11	1.14	1.16	1.18	1.20

1/ TSUSA item 110.5565; also includes cusk and hake.

Source: Compiled from official statistics of the U.S. Department of Commerce.

Note.--Because of rounding, figures may not add to the totals shown.

Table 64.--Fresh flatfish fillets: 1/ Northeastern U.S. imports for consumption, by principal sources, 1979-83

Source	1979	1980	1981	1982	1983
Quantity (1,000 pounds)					
Canada-----	977	1,271	2,543	1,572	1,108
All other-----	0	2	7	111	190
Total-----	977	1,273	2,550	1,683	1,298
Value (1,000 dollars)					
Canada-----	1,265	1,605	3,754	2,482	1,659
All other-----	-	6	22	178	567
Total-----	1,265	1,611	3,776	2,660	2,226
Unit value (per pound)					
Canada-----	\$1.29	\$1.26	\$1.48	\$1.58	\$1.50
All other-----	-	3.00	3.14	1.60	2.98
Average-----	1.29	1.27	1.48	1.58	1.71

1/ TSUSA item 110.7033

Source: Compiled from official statistics of the U.S. Department of Commerce.

Note.--Because of rounding, figures may not add to the totals shown.

Most U.S. imports of whole groundfish enter in the fresh form. U.S. imports into the Northeastern United States of the subject groundfish in the whole fresh form increased steadily from 13 million pounds, valued at \$5 million, in 1979 to 40 million pounds, valued at \$18 million, in 1983, or by more than twofold in quantity and in value (table 65).

Northeastern U.S. imports of fresh, whole haddock and pollock 1/ increased steadily from 7 million pounds, valued at \$3 million, in 1979 to 23 million pounds, valued at \$10 million, in 1983, or by more than twofold in quantity and in value (table 66). Virtually all of such imports were supplied by Canada.

Imports of fresh, whole cod into the Northeastern United States also increased, from 3 million pounds, valued at \$1 million, in 1979 to 12 million pounds, valued at \$5 million, in 1983, or by nearly threefold in quantity and value (table 67). Again, Canada supplied virtually all of the total.

1/ Not reported separately; also includes cusk and hake.

Table 65.--Whole groundfish: Northeastern U.S. imports for consumption, by product forms and by species, 1979-83

Product form and species	1979	1980	1981	1982	1983
Quantity (1,000 pounds)					
<b>Fresh:</b>					
Haddock and pollock 1/--	6,544	7,698	15,846	18,043	22,877
Cod 2/-----	3,186	3,146	7,101	8,256	12,020
Flatfish 3/-----	2,839	2,340	3,630	4,098	5,031
Total-----	12,569	13,183	26,577	30,397	39,928
<b>Frozen:</b>					
Flatfish 4/-----	3,191	1,372	1,933	1,890	1,893
Cod 5/-----	1,130	1,187	907	1,095	487
Haddock and pollock 6/--	679	244	250	395	122
Total-----	5,000	2,803	3,090	3,380	2,502
Value (1,000 dollars)					
<b>Fresh:</b>					
Haddock and pollock 1/--	2,586	3,252	6,661	7,826	10,317
Cod 2/-----	1,099	1,139	2,773	3,278	4,597
Flatfish 3/-----	845	821	2,106	2,702	3,435
Total-----	4,530	5,212	11,539	13,806	18,349
<b>Frozen:</b>					
Flatfish 4/-----	6,618	2,846	4,477	3,720	2,627
Cod 5/-----	694	767	622	712	283
Haddock and pollock 6/--	242	59	199	269	134
Total-----	7,554	3,672	5,298	4,701	3,044
Unit value (per pound)					
<b>Fresh:</b>					
Haddock and pollock 1/--	\$0.40	\$0.42	\$0.42	\$0.43	\$0.45
Cod 2/-----	.35	.36	.39	.40	.38
Flatfish 3/-----	.30	.35	.58	.66	.68
Total-----	.36	.40	.43	.45	.46
<b>Frozen:</b>					
Flatfish 4/-----	2.07	2.07	2.32	1.97	1.39
Cod 5/-----	.61	.65	.69	.65	.58
Haddock and pollock 6/--	.36	.24	.80	.68	1.10
Total-----	1.51	1.31	1.71	1.39	1.22

1/ TSUSA item 110.1593; also includes cusk and hake.

2/ TSUSA item 110.1585.

3/ TSUSA item 110.3560

4/ TSUSA item 110.1597; also includes cusk and hake.

5/ TSUSA item 110.1589.

6/ TSUSA item 110.3565.

Source: Compiled from official statistics of the U.S. Department of Commerce.

Note.--Because of rounding, figures may not add to the totals shown.

Table 66.--Whole, fresh haddock and pollock: 1/ Northeastern U.S. imports for consumption, by principal sources, 1979-83

Source	1979	1980	1981	1982	1983
Quantity (1,000 pounds)					
Canada-----	6,542	7,646	15,732	17,995	22,874
All other-----	2	52	114	48	3
Total-----	6,544	7,698	15,846	18,043	22,877
Value (1,000 dollars)					
Canada-----	2,584	3,174	6,605	7,803	10,312
All other-----	2	78	56	23	5
Total-----	2,586	3,252	6,661	7,826	10,317
Unit value (per pound)					
Canada-----	\$0.39	\$0.42	\$0.42	\$0.43	\$0.45
All other-----	1.00	1.50	.49	.48	1.67
Average-----	.40	.42	.42	.43	.45

1/ TSUSA item no. 110.1593; also includes cusk and hake.

Source: Compiled from official statistics of the U.S. Department of Commerce.

Note.--Because of rounding, figures may not add to the totals shown.

Table 67.--Whole, fresh cod: 1/ Northeastern U.S. imports for consumption, by principal sources, 1979-83

Source	1979	1980	1981	1982	1983
Quantity (1,000 pounds)					
Canada-----	3,186	3,146	7,094	8,256	12,019
All other-----	0	0	7	0	1
Total-----	3,186	3,146	7,101	8,256	12,020
Value (1,000 dollars)					
Canada-----	1,099	1,139	2,767	3,278	4,595
All other-----	-	-	6	-	2
Total-----	1,099	1,139	2,773	3,278	4,597
Unit value (cents per pound)					
Canada-----	\$0.34	\$0.36	\$0.39	\$0.40	\$0.38
All other-----	-	-	.86	-	2.00
Average-----	.34	.36	.39	.40	.38

1/ TSUSA item 110.1585

Source: Compiled from official statistics of the U.S. Department of Commerce.

Note.--Because of rounding, figures may not add to the totals shown.

Northeastern U.S. imports of fresh, whole flatfish increased from 3 million pounds, valued at \$1 million, in 1979 to 5 million pounds, valued at \$3 million, in 1983, or by 77 percent in quantity and by more than twofold in value (table 68). Canada supplied 94 percent of the quantity of such imports during 1979-83, but only 56 percent of the value; the Netherlands supplied only 5 percent of the quantity but 36 percent of the value. Imports from both countries increased substantially during 1979-83.

U.S. imports of the subject groundfish in the frozen, whole form into the Northeastern region have been declining, from 5 million pounds, valued at \$8 million, in 1979 to 3 million pounds, valued at \$3 million, in 1983 (table 57).

Flatfish was the principal species for the subject imports of frozen, whole groundfish, with Northeastern U.S. imports declining from 3 million pounds, valued at \$7 million, in 1979 to 2 million pounds, valued at \$3 million, in 1983 (table 69). The sources of supply are more varied for frozen, whole flatfish than for other species, with the Netherlands leading all suppliers and accounting for 44 percent of the quantity and 68 percent of the value of the Northeastern U.S. total during 1979-83. The remainder was supplied principally by Iceland, Belgium-Luxembourg, Canada, and Japan.

Much smaller quantities of frozen, whole cod and frozen, whole haddock and pollock 1/ are imported in the Northeastern United States. Such frozen, whole cod imports decreased from 1 million pounds, valued at \$694,000, in 1979 to 487,000 pounds, valued at \$283,000, in 1983 (table 70); and frozen, whole haddock and pollock 1/ imports decreased from 679,000 pounds, valued at \$242,000, in 1979 to 122,000 pounds, valued at \$134,000, in 1983 (table 71). Canada, by far, was the principal supplier of these imports during 1979-83.

Northeastern U.S. imports of frozen blocks of the subject groundfish showed no discernible trend during 1979-83 and ranged from 237 million pounds, valued at \$221 million, in 1982 to 303 million pounds, valued at \$289 million, in 1983 (table 72). Canada was the major supplier and cod was the major species imported.

Northeastern U.S. scallop imports ranged from 19 million pounds, valued at \$68 million, in 1982 to 25 million pounds, valued at \$119 million, in 1983 (table 73). During this period, 88 percent of both the quantity and value of total U.S. scallop imports entered through the Northeastern United States.

Canada, by far, was the principal supplier of Northeastern U.S. scallop imports during 1979-83. Such imports showed no discernible trend during the period, with the quantity ranging from 13 million pounds in 1983 to 19 million pounds in 1979; the value ranged from \$55 million in 1982 to \$85 million in 1981. Canada accounted for 72 percent of the quantity and 76 percent of the value of Northeastern U.S. scallop imports during 1979-83.

Japan was the second leading supplier of Northeastern U.S. scallop imports in terms of value in 1983. Such imports from that country increased from 7,000 pounds, valued at \$124,000, in 1979 to 3 million pounds, valued at

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1/ Not reported separately; also includes cusk and hake.

Table 68.—Whole, fresh flatfish: 1/ Northeastern U.S. imports for consumption, by principal sources, 1979-83

Source	1979	1980	1981	1982	1983
Quantity (1,000 pounds)					
Canada-----	2,792	2,299	3,422	3,724	4,538
Netherlands-----	31	22	102	344	432
All other-----	16	19	106	30	61
Total-----	2,839	2,340	3,630	4,098	5,031
Value (1,000 dollars)					
Canada-----	726	682	1,209	1,225	1,695
Netherlands-----	91	86	467	1,356	1,535
All other-----	28	53	430	121	205
Total-----	845	821	2,106	2,702	3,435
Unit value (per pound)					
Canada-----	\$0.26	\$0.30	\$0.35	\$0.33	\$0.37
Netherlands-----	2.94	3.91	4.58	3.94	3.55
All other-----	1.75	2.79	4.06	4.03	3.36
Average-----	.30	.35	.58	.66	.68

1/ TSUSA item no. 110.3560.

Source: Compiled from official statistics of the U.S. Department of Commerce.

Note.—Because of rounding, figures may not add to the totals shown.

Table 69.--Whole, frozen flatfish: <sup>1/</sup> Northeastern U.S. imports for consumption, by principal sources, 1979-83

Source	1979	1980	1981	1982	1983
Quantity (1,000 pounds)					
Netherlands-----	1,524	592	1,040	726	638
All other-----	1,667	780	893	1,164	1,255
Total-----	3,191	1,372	1,933	1,890	1,893
Value (1,000 dollars)					
Netherlands-----	4,674	1,647	3,259	2,393	1,840
All other-----	1,944	1,199	1,218	1,327	787
Total-----	6,618	2,846	4,477	3,720	2,627
Unit value (per pound)					
Netherlands-----	\$3.07	\$2.78	\$3.13	\$3.29	\$2.88
All other-----	1.17	1.54	1.36	1.14	.63
Average-----	2.07	2.07	2.32	1.97	1.39

<sup>1/</sup> TSUSA item 110.3565

Source: Compiled from official statistics of the U.S. Department of Commerce.

Note.--Because of rounding, figures may not add to the totals shown.

Table 70.--Whole, frozen cod: <sup>1/</sup> Northeastern U.S. imports for consumption, by principal sources, 1979-83

Source	1979	1980	1981	1982	1983
Quantity (1,000 pounds)					
Canada-----	1,115	1,187	679	1,095	408
All other-----	15	2/	228	2/	79
Total-----	1,130	1,187	907	1,095	487
Value (1,000 dollars)					
Canada-----	676	766	389	712	238
All other-----	18	1	233	1	45
Total-----	694	767	622	713	283
Unit value (per pound)					
Canada-----	\$0.61	\$0.65	\$0.57	\$0.65	\$0.58
All other-----	1.20	-	1.02	-	.57
Average-----	.61	.65	.69	.65	.58

<sup>1/</sup> TSUSA item 110.1589.

<sup>2/</sup> Less than 500 pounds.

Source: Compiled from official statistics of the U.S. Department of Commerce.

Note.--Because of rounding, figures may not add to the totals shown.

Table 71.--Whole, frozen haddock and pollock: 1/ Northeastern U.S. imports for consumption, by principal sources, 1979-83

Source	1979	1980	1981	1982	1983
Quantity (1,000 pounds)					
Canada-----	546	194	230	100	77
Republic of Korea-----	0	2	11	282	13
All other-----	333	48	9	13	32
Total-----	679	244	250	395	122
Value (1,000 dollars)					
Canada-----	200	40	174	60	64
Republic of Korea-----	-	6	15	188	31
All other-----	42	13	10	21	39
Total-----	242	59	199	269	134
Unit value (per pound)					
Canada-----	\$0.37	\$0.21	\$0.76	\$0.60	\$0.83
Republic of Korea-----	-	.23	1.32	.67	2.45
All other-----	.32	.27	1.11	1.62	1.22
Average-----	.36	.24	.80	.68	1.10

1/ TSUSA item 110.1597.

Source: Compiled from official statistics of the U.S. Department of Commerce.

Note.--Because of rounding, figures may not add to the totals shown.

Table 72.--Groundfish blocks: 1/ Northeastern U.S. imports for consumption, by principal species, 1979-83

Species	1979	1980	1981	1982	1983
Quantity (1,000 pounds)					
Cod-----	187,826	156,203	165,477	145,641	194,852
Pollock-----	83,609	58,929	65,136	55,595	72,739
Haddock-----	18,308	31,197	37,329	29,238	27,663
Flatfish-----	11,899	7,875	9,027	6,154	8,237
Total-----	301,642	254,204	276,970	236,628	303,490
Value (1,000 dollars)					
Cod-----	182,223	152,600	154,124	146,291	208,096
Pollock-----	51,875	36,674	46,914	38,426	42,170
Haddock-----	18,439	36,060	38,180	29,843	29,549
Flatfish-----	13,090	9,050	9,600	6,468	8,998
Total-----	265,627	234,384	248,818	221,028	288,813
Unit value (per pound)					
Cod-----	\$0.97	\$0.98	\$0.93	\$1.00	\$1.07
Pollock-----	.62	.62	.72	.69	.58
Haddock-----	1.01	1.16	1.02	1.02	1.07
Flatfish-----	1.10	1.15	1.06	1.05	1.09
Average-----	.88	.92	.90	.93	.95

1/ TSUSA item 110.4710, 110.4726, 110.4730, and 110.4740.

Source: Compiled from official statistics of the U.S. Department of Commerce.

Note.--Because of rounding, figures may not add to the totals shown.

Table 73.--Scallops: 1/ Northeastern U.S. imports for consumption, by principal sources, 1979-83

Source	1979	1980	1981	1982	1983
Quantity (1,000 pounds)					
Canada-----	18,890	14,626	18,769	14,732	13,381
Japan-----	7	10	164	438	3,308
Iceland-----	2,064	1,568	1,982	2,678	3,384
United Kingdom-----	1,353	1,357	1,695	863	2,248
Australia-----	0	195	364	280	717
All other-----	1,465	2,003	1,438	362	1,482
Total-----	23,779	19,759	24,412	19,353	24,520
Value (1,000 dollars)					
Canada-----	66,678	60,712	85,313	55,456	73,436
Japan-----	124	221	894	1,622	14,885
Iceland-----	5,279	4,859	6,808	6,560	12,243
United Kingdom-----	4,505	5,028	5,834	2,366	10,258
Australia-----	-	627	1,180	873	2,925
All other-----	3,683	5,678	4,925	1,027	5,577
Total-----	80,269	77,125	104,954	67,904	119,324
Unit value (per pound)					
Canada-----	\$3.53	\$4.15	\$4.55	\$3.76	\$5.49
Japan-----	17.71	22.10	5.45	3.70	4.50
Iceland-----	2.56	3.10	3.43	2.45	3.62
United Kingdom-----	3.33	3.71	3.44	2.74	4.56
Australia-----	-	3.22	3.24	3.12	4.08
All other-----	2.51	2.83	3.42	2.84	3.76
Average-----	3.38	3.90	4.30	3.51	4.87

1/ TSUSA item 114.4537.

Source: Compiled from official statistics of the U.S. Department of Commerce.

Note.--Because of rounding, figures may not add to the totals shown.

\$15 million, in 1983. This marked increase occurred as scallop users sought new sources of supply in light of declining stocks in waters off the United States and Canada.

Northeastern U.S. imports of scallops from Iceland, the third leading supplier, increased irregularly from 2 million pounds, valued at \$5 million, in 1979 to 3 million pounds, valued at \$12 million, in 1983. Such imports accounted for 10 percent of the quantity and 8 percent of the value of the Northeastern U.S. total during 1979-83.

Imports from the United Kingdom also increased irregularly during the period, from 1 million pounds, valued at \$5 million, in 1979 to 2 million pounds, valued at \$10 million, in 1983. The United Kingdom accounted for 7 percent of the quantity and 6 percent of the value of total Northeastern U.S. imports of scallops during 1979-83.

Monthly groundfish and scallop imports in the Northeastern United States during 1983 are shown in table 74. Imports of fresh, whole groundfish generally vary inversely with landings, with greater quantities of imports entering during the winter months. This is due to the fact that with U.S. landings being lower during this period, whole fish prices are significantly higher in the U.S. market, thus attracting imports, mostly from Canada, where relative prices are generally lower throughout the year. During the summer months, U.S. landings generally are at their peak, prices are lower, and U.S. fillet processors require less imported raw material.

Seasonality in whole fish imports is most pronounced with cod, the principal species imported. During 1983, monthly imports of fresh, whole cod in the Northeastern region ranged from 3.2 million pounds, valued at \$1.3 million, in December to 124,000 pounds, valued at \$35,000, in June. This represents a variation of 96 percent in quantity and 97 percent in value between the high and the low months. The unit value of such imports ranged from \$0.41 in December to \$0.28 in June, a difference of 32 percent.

The following tabulation shows the ratio of Northeastern U.S. imports of fresh, whole cod to New England landings during 1983 (derived from official statistics of the U.S. Department of Commerce, in percent):

<u>Month</u>	<u>Ratio of imports to landings</u>
January-----	14
February-----	10
March-----	18
April-----	9
May-----	2
June-----	1
July-----	1
August-----	4
September-----	10
October-----	15
November-----	24
December-----	47

Figure 8 shows monthly Northeastern U.S. landings of cod and imports of whole, fresh cod during 1983. This figure and the previous tabulation show the seasonally inverse relationship between such landings and imports.

Monthly Northeastern U.S. imports of fresh, whole flatfish generally trended upward during 1983, mainly the result of declining U.S. landings toward the latter part of the year combined with steady demand by fillet processors for raw material and by retail fish distributors.

Table 74.--Groundfish and scallops: Northeastern U.S. imports for consumption, by species, and by months, 1983

Item	Quantity (1,000 pounds)											
	Jan-uary	Feb-ruary	March	April	May	June	July	Aug-ust	Sep-tember	Oc-tober	No-vember	De-cember
<b>Whole:</b>												
<b>Fresh:</b>												
Cod	1,101	955	1,382	897	213	124	143	337	907	1,130	1,669	3,162
Flatfish	122	120	170	122	303	331	304	500	858	1,491	520	190
Haddock and pollock	1,431	2,022	3,094	1,499	1,873	1,431	1,291	1,714	2,709	2,574	1,486	1,753
<b>Total</b>	2,654	3,096	4,646	2,518	2,388	1,886	1,738	2,551	4,475	5,195	3,676	5,106
<b>Frozen:</b>												
Cod	120	148	65	1/	15	1	42	1	26	40	26	4
Flatfish	119	344	58	145	336	166	181	117	70	197	84	76
Haddock and pollock	33	1/	2	0	8	2	6	0	26	0	19	26
<b>Total</b>	272	492	124	146	359	169	229	117	122	237	129	106
<b>Fillets:</b>												
<b>Fresh:</b>												
Cod	690	991	2,311	929	677	575	373	509	740	670	498	928
Flatfish	64	93	58	33	50	140	72	141	169	217	164	97
Haddock and pollock	237	575	1,340	634	560	514	496	501	559	247	270	145
<b>Total</b>	991	1,659	3,709	1,596	1,287	1,229	941	1,150	1,467	1,134	932	1,170
<b>Frozen:</b>												
Cod	4,631	10,544	20,026	12,671	15,051	18,206	19,549	15,989	12,919	12,153	8,292	12,850
Flatfish	1,941	1,279	1,697	1,317	1,853	3,653	3,169	3,363	3,246	2,523	2,724	3,437
Haddock and pollock	1,670	4,241	5,710	3,364	4,000	6,068	4,403	5,329	4,481	4,612	3,227	4,332
<b>Total</b>	8,242	16,064	27,433	17,352	20,903	27,927	27,122	24,682	20,645	19,287	14,243	20,618
<b>Scallops, fresh or frozen</b>	1,402	1,206	1,641	1,179	1,930	2,166	2,441	1,864	3,069	3,029	2,705	1,887

See footnote at end of table.

Table 74.---Groundfish and scallops: Northeastern U.S. imports for consumption, by species, and by months, 1983--Continued

Item	Jan-uary	Feb-ruary	March	April	May	June	July	Aug-ust	Sep-tember	Oc-tober	No-ember	De-cember
Value (1,000 dollars)												
Whole:												
Fresh:												
Cod-----	422	383	526	377	82	35	45	101	291	394	638	1,303
Flatfish-----	218	120	217	297	225	209	262	330	395	772	266	124
Haddock and pollock-----	694	950	1,543	741	820	624	562	769	1,147	1,059	611	797
Total-----	1,334	1,452	2,286	1,416	1,127	867	868	1,201	1,832	2,225	1,515	2,224
Frozen:												
Cod-----	60	80	38	1	10	1	20	3	24	20	21	6
Flatfish-----	118	147	60	134	716	332	332	154	48	263	161	162
Haddock and pollock-----	31	2	1	-	21	5	5	-	26	-	19	25
Total-----	209	228	99	135	747	338	357	157	97	283	200	193
Filletts:												
Fresh:												
Cod-----	805	1,202	2,613	1,049	757	618	397	537	833	743	602	1,156
Flatfish-----	126	196	126	82	139	221	132	221	272	352	223	157
Haddock and pollock-----	303	721	1,514	775	625	633	569	582	697	309	366	194
Total-----	1,234	2,119	4,253	1,906	1,521	1,473	1,099	1,340	1,802	1,403	1,191	1,507
Frozen:												
Cod-----	6,106	14,869	24,896	17,343	20,152	23,994	26,634	21,544	17,169	17,180	11,109	17,350
Flatfish-----	2,997	1,926	2,281	2,007	3,071	5,740	5,054	5,500	4,505	3,604	4,127	5,535
Haddock and pollock-----	1,730	5,586	8,496	5,131	4,661	6,628	5,039	6,251	4,977	6,163	3,486	5,341
Total-----	10,834	22,381	35,673	24,481	27,885	36,362	36,727	33,295	26,651	26,947	18,722	28,227
Scallops: fresh or frozen-----	6,259	4,409	6,592	5,194	8,558	10,195	12,863	10,368	16,098	15,917	13,655	9,218

See footnote at end of table.

Table 74.--Groundfish and scallops: Northeastern U.S. imports for consumption, by species, and by months 1983--Continued

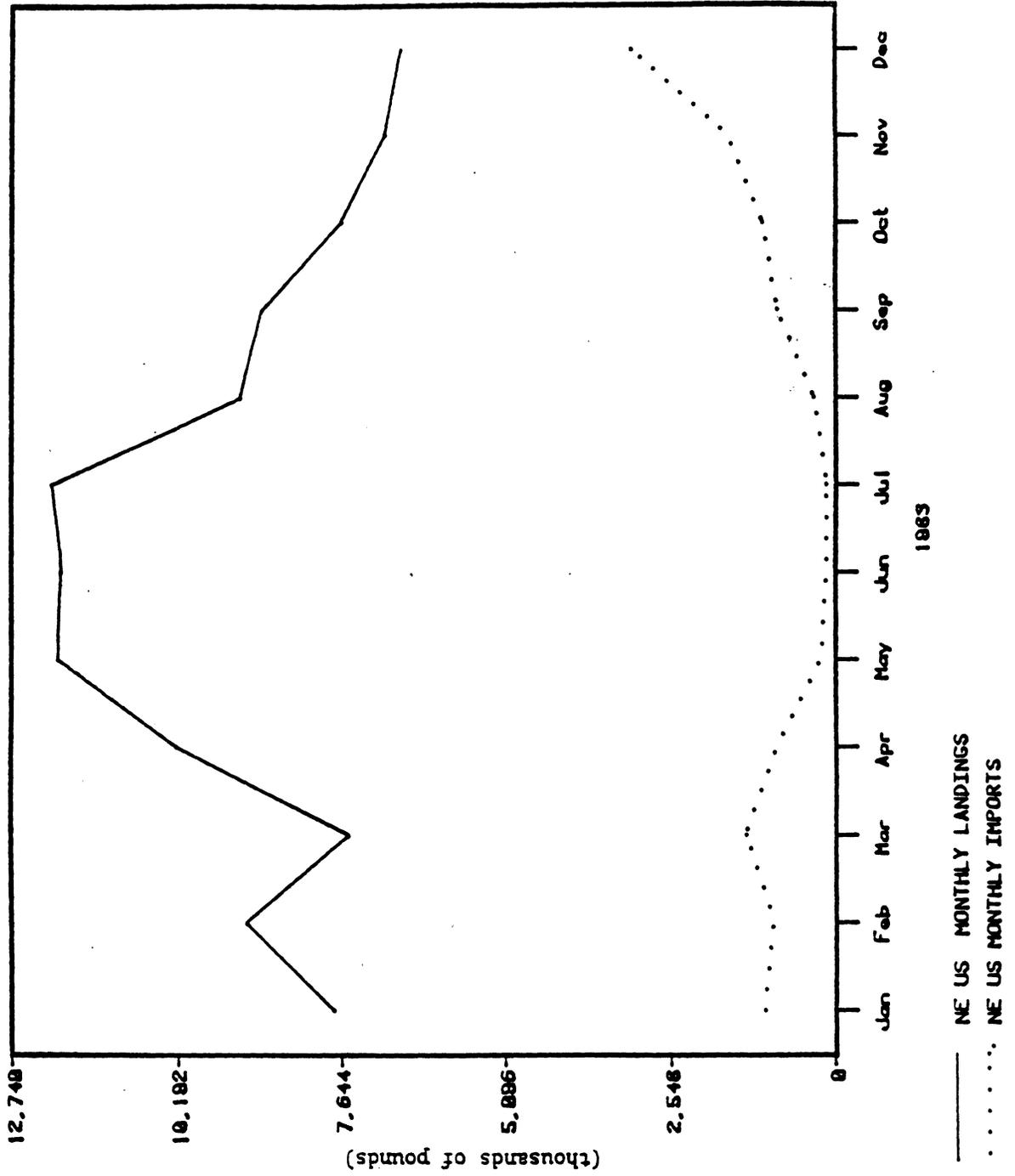
Item	Jan- USEY	Feb- RUSEY	March	April	May	June	July	Aug- ust	Sep- tember	Oc- tober	Mo- vember	De- cember
Unit value (per pound)												
Whole:												
Fresh:												
Cod-----	\$0.38	\$0.40	\$0.38	\$0.42	\$0.39	\$0.28	\$0.31	\$0.30	\$0.32	\$0.35	\$0.38	\$0.41
Flatfish-----	1.79	1.00	1.27	2.43	.74	.63	.86	.66	.46	.52	.51	.65
Haddock and pollock-----	.48	.47	.50	.49	.44	.44	.44	.45	.42	.41	.41	.45
Average-----	.50	.47	.49	.56	.47	.46	.50	.47	.41	.43	.41	.44
Frozen:												
Cod-----	.50	.54	.59	1.81	.67	1.60	.48	5.58	.91	.50	.78	1.54
Flatfish-----	.99	.43	1.09	.92	2.13	1.99	1.84	1.32	.68	1.34	1.92	2.11
Haddock and pollock-----	.94	16.36	.42	—	2.62	2.40	.82	—	.98	—	.99	.98
Average-----	.77	.46	.80	.92	2.08	2.00	1.56	1.34	.80	1.19	1.55	1.82
Filletts:												
Fresh:												
Cod-----	1.17	1.21	1.13	1.13	1.12	1.08	1.07	1.06	1.13	1.11	1.21	1.25
Flatfish-----	1.96	2.10	2.16	2.47	2.78	1.58	1.83	1.57	1.61	1.62	1.36	1.62
Haddock and pollock-----	1.28	1.25	1.13	1.22	1.12	1.23	1.15	1.16	1.25	1.25	1.36	1.34
Average-----	1.24	1.28	1.15	1.19	1.18	1.20	1.17	1.17	1.23	1.24	1.28	1.29
Frozen:												
Cod-----	1.32	1.41	1.24	1.37	1.34	1.32	1.36	1.35	1.33	1.41	1.34	1.35
Flatfish-----	1.54	1.51	1.34	1.52	1.66	1.57	1.59	1.64	1.39	1.43	1.52	1.61
Haddock and pollock-----	1.04	1.32	1.49	1.53	1.17	1.09	1.14	1.17	1.11	1.34	1.08	1.23
Average-----	1.31	1.39	1.30	1.41	1.33	1.30	1.35	1.35	1.29	1.40	1.31	1.37
Scallops, fresh or frozen-----	4.47	3.65	4.02	4.41	4.43	4.71	5.27	5.56	5.25	5.25	5.05	4.88

1/ Less than 500 pounds.

Source: Compiled from official statistics of the U.S. Department of Commerce, National Marine Fisheries Service.

Note.--Because of rounding, figures may not add to the totals shown.

Figure 8.--Monthly Northeastern U.S. cod landings and imports of fresh, whole cod, 1983



Source: compiled from official statistics of the National Marine Fisheries Service

Monthly imports of fresh groundfish fillets into the Northeastern region generally vary seasonally, as do imports of fresh, whole fish. Imports of fresh groundfish fillets are higher in winter months, as lower domestic supplies and higher prices attract imports, particularly from Canada. Imports of fresh fillets of cod, the principal species, into the Northeastern region during 1983 ranged from 2.3 million pounds, valued at \$2.6 million, in March to 373,000 pounds, valued at \$397,000 in July. Such imports were highest in March owing, in large part, to increased demand caused by the start of Lent, a traditional high demand season for fish in the Northeastern region.

Imports of frozen groundfish are less seasonal than imports of fresh groundfish. Relatively low levels of domestic production, well established marketing channels, generally stable demand, relatively low perishability, and generally constant prices contribute to more consistent monthly import levels for frozen groundfish.

Imports also vary significantly on a daily basis. Figure 9 shows daily Northeastern U.S. imports of fresh cod (whole and fillets, whole-fish basis) from Canada (by far the largest supplier) during January-June 1983. <sup>1/</sup> Such imports ranged from none to 4.6 million pounds daily during the period. The fluctuations in such imports are caused primarily by the availability of fresh cod in Atlantic Canada coupled with supply and demand conditions in the Northeastern U.S. market.

During the first half of 1984, Northeastern U.S. imports of fresh and frozen groundfish were up slightly over the comparable period in 1983, as shown in table 75. Imports of whole groundfish during January-June 1984 totaled 29 million pounds, valued at \$14 million, up 57 percent by quantity and 37 percent by value from the year-earlier period. Imports of whole, fresh cod, up 8.2 million pounds during the first half of 1984, accounted for most of the increase; Canada was the principal supplier.

Imports of frozen groundfish fillets during the first half of 1984 were also higher than the corresponding period in 1983, rising from 119 million pounds, valued at \$159 million, during January-June 1983 to 128 million pounds, valued at \$168 million, during January-June 1984, an increase of 7 percent by quantity and 6 percent by value. Imports of frozen flatfish fillets, up 6.4 million pounds (or 55 percent) between the periods, accounted for most of the increase.

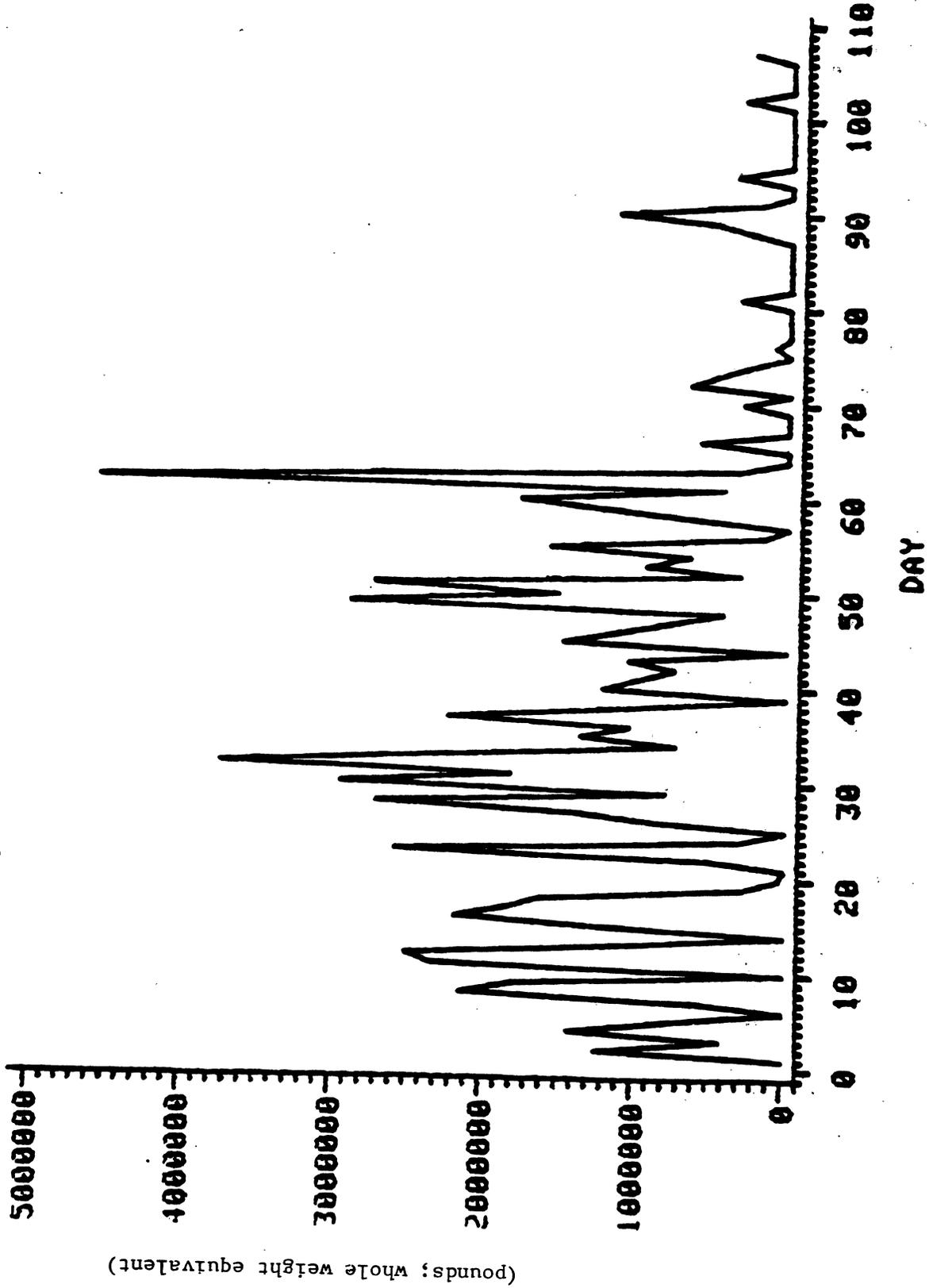
Imports of groundfish blocks during January-June 1984 totaled 146 million pounds, valued at \$135 million, compared with 164 million pounds, valued at \$155 million, imported during the same period in 1983. This represents an 11 percent decrease in the quantity of block imports and a 13 percent drop in value.

Imports of scallops also declined, from 10 million pounds, valued at \$41 million, during January-June 1983 to 8 million pounds, valued at \$37 million, during the same period in 1984, or by 17 percent in quantity and 11 percent in value.

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<sup>1/</sup> Some data points are missing during the period. Data represent <sup>155</sup> date of importation as given on the IM115, U.S. Bureau of the Census.

Figure 9.--Daily Northeastern U.S. imports of fresh whole and filleted cod, January-June 1983.



Source: Compiled from official statistics of the U.S. Bureau of the Census.

Table 75.--Groundfish and scallops: Northeastern U.S. imports for consumption, by product forms and by species, January-June 1983 and January-June 1984

Product form and species	January-June 1983	January-June 1984
Quantity (1,000 pounds)		
Whole:		
Fresh:		
Cod-----	4,671	12,911
Flatfish-----	1,168	2,776
Haddock and pollock-----	11,349	12,735
Total-----	17,188	28,422
Frozen:		
Cod-----	348	35
Flatfish-----	1,169	558
Haddock and pollock-----	44	354
Total-----	1,561	947
Fillets:		
Fresh:		
Cod-----	6,173	7,658
Flatfish-----	439	965
Haddock and pollock-----	3,860	2,707
Total-----	10,472	11,330
Frozen:		
Cod-----	82,416	87,395
Flatfish-----	11,739	18,154
Haddock and pollock-----	25,054	21,987
Total-----	119,209	127,536
Blocks-----	163,769	145,630
Scallops-----	9,524	7,885
Value (1,000 dollars)		
Whole:		
Fresh:		
Cod-----	1,825	4,802
Flatfish-----	1,286	2,217
Haddock and pollock-----	5,372	6,050
Total-----	8,483	13,069
Frozen:		
Cod-----	190	13
Flatfish-----	1,507	673
Haddock and pollock-----	60	258
Total-----	1,757	944
Fillets:		
Fresh:		
Cod-----	7,044	8,359
Flatfish-----	870	1,628
Haddock and pollock-----	4,571	3,053
Total-----	12,485	13,040
Frozen:		
Cod-----	108,848	114,486
Flatfish-----	18,024	27,999
Haddock and pollock-----	32,232	25,459
Total-----	159,104	167,944
Blocks-----	155,312	134,541
Scallops-----	41,206	36,764

Source: Compiled from official statistics of the U.S. Department of Commerce.

## CANADIAN MARKET

## Market Profile

Similar factors influence the demand for groundfish and scallops in the Canadian market as in the U.S. market. The level of disposable income, population, prices relative to substitute goods as well as absolute prices, and consumer tastes and attitudes are the major factors that affect the demand for groundfish products in the Canadian market.

The Canadian market is about one-tenth the size of the U.S. market in terms of population at an estimated 25 million people. Geographically, the major markets for groundfish and scallops in Canada are centered in the major urban areas of Toronto and Montreal, which are relatively far from the primary groundfish and scallop producing areas in Atlantic Canada. Per capita consumption of fish products in Canada is about 14 to 16 pounds.

Canada's fish products industry, including the Atlantic Canada groundfish and scallop industry, is oriented toward the export market. However, a relatively small share of groundfish and scallops remain for domestic consumption. <sup>1/</sup> Groundfish and scallops are marketed in Canada in much the same way as in the United States. Fishermen may sell directly to processors, processors may sell directly to domestic (and more in the case of Canada, to foreign) buyers, or wholesalers and brokers are utilized by fishermen and processors to market products to retail outlets, restaurants, and institutional trades. The domestic market in Canada has traditionally been for fish products in frozen, canned, or cured form; however, a growing market is reportedly developing for fresh fish products (including groundfish and scallops), particularly in various metropolitan areas.

## Consumption

Canadian apparent consumption of the subject whole groundfish increased from 1.2 billion pounds in 1979 to 1.5 billion pounds in 1982 (the latest year for which data are available), or by 25 percent (table 76). Such consumption generally is a measure of the utilization of whole fish by processors of other fish products, particularly fillets and blocks. The share of such consumption supplied by imports was relatively low, ranging from 0.3 to 0.6 percent during 1979-82. The share of production that was exported was much higher, ranging from 5-6 percent during the period.

Canadian apparent consumption of fresh groundfish fillets decreased during 1979-82, from 10 million pounds in the former year to 2 million pounds in the latter (table 77). This decline resulted mainly from increased exports, particularly to the U.S. market. The share of such consumption supplied by imports increased from 11 percent in 1979 to 41 percent in 1982; the share of production that was exported increased from 59 percent in 1979 to 95 percent in 1982.

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<sup>1/</sup> In 1982, less than 20 percent of the quantity of Atlantic Canada production of fresh and frozen groundfish fillets and blocks and scallops was consumed in Canada.

Table 76.--Whole groundfish: Canadian production, imports, exports, and apparent consumption, 1979-83

Year	Production <u>1/</u>	Imports	Exports	Apparent consumption	Ratio of imports to consumption	Ratio of exports to production
-----1,000 pounds-----				-----Percent-----		
1979	1,221,344	3,244	60,398	1,166,190	0.4	5
1980	1,362,425	7,754	80,922	1,289,257	.6	6
1981	1,416,270	4,116	71,069	1,349,317	.3	5
1982	1,534,395	5,253	79,150	1,460,498	.4	5
1983	1,440,957	<u>2/</u>	82,662	<u>2/</u>	<u>2/</u>	<u>2/</u>

1/ Atlantic Canada landings.

2/ Not available.

Source: Canadian Fisheries Annual Statistical Review.

Table 77.--Fresh groundfish fillets: Canadian production, imports, exports, and apparent consumption, 1979-83

Year	Production <u>1/</u>	Imports	Exports	Apparent consumption	Ratio of imports to consumption	Ratio of exports to production
-----1,000 pounds-----				-----Percent-----		
1979	21,850	1,076	12,958	9,968	11	59
1980	14,057	785	12,592	2,250	35	90
1981	14,689	776	16,237	772	101	111
1982	19,248	675	18,276	1,647	41	95
1983	<u>2/</u>	<u>2/</u>	25,571	<u>2/</u>	<u>2/</u>	<u>2/</u>

1/ Atlantic Canada.

2/ Not available.

Source: Canadian Fisheries Annual Statistical Review.

Apparent consumption of frozen groundfish fillets in Canada ranged from 31 million pounds in 1980 to 38 million pounds in 1981 (table 78). Imports accounted for 6 to 8 percent of such consumption during 1979-82. The share of production that was exported rose from 76 percent in 1979 to 83 percent in 1982.

Table 78.--Frozen groundfish fillets: Canadian production, imports, exports, and apparent consumption, 1979-83

Year	Production <u>1/</u>	Imports	Exports	Apparent consumption	Ratio of imports to consumption	Ratio of exports to production
-----1,000 pounds-----					-----Percent-----	
1979---	132,399	2,059	101,085	33,373	6	76
1980---	126,976	1,845	97,609	31,212	6	77
1981---	161,617	2,414	125,586	38,445	6	78
1982---	174,582	2,476	145,585	31,473	8	83
1983---	<u>2/</u>	<u>2/</u>	128,468	<u>2/</u>	<u>2/</u>	<u>2/</u>

1/ Atlantic Canada.

2/ Not available.

Source: Canadian Fisheries Annual Statistical Review.

Canadian apparent consumption of groundfish blocks ranged from 20 million pounds in 1980 to 33 million pounds in 1979 (table 79). Such consumption generally measures the utilization of the blocks by converters, or firms that produce further-processed products such as breaded sticks and portions. The share of such consumption accounted for by imports ranged from 35 percent in 1982 to 47 percent in 1980. The share of production that was exported ranged from 84 percent in 1979 to 92 percent in 1980.

Table 79.--Groundfish blocks: Canadian production, imports, exports, and apparent consumption, 1979-83

Year	Production <u>1/</u>	Imports	Exports	Apparent consumption	Ratio of imports to consumption	Ratio of exports to production
-----1,000 pounds-----					-----Percent-----	
1979---	130,124	11,901	109,325	32,700	36	84
1980---	137,275	9,613	126,363	20,475	47	92
1981---	124,154	8,362	110,905	21,611	39	89
1982---	130,869	8,495	115,108	24,256	35	88
1983---	<u>2/</u>	<u>2/</u>	135,882	<u>2/</u>	<u>2/</u>	<u>2/</u>

1/ Atlantic Canada.

2/ Not available.

Source: Canadian Fisheries Annual Statistical Review.

Apparent consumption of scallops in Canada increased from 6 million pounds in 1979 to 12 million pounds in 1981 before falling to 3 million pounds in 1983 (table 80). The pattern of such consumption resulted from changes in scallop resources, particularly in the Georges Bank region, which affected landings both in Canada and the United States. Reflecting a general decline in scallop resources, the share of consumption supplied by imports increased from 30 percent in 1979 to 100 percent in 1983. The share of production that was exported ranged from 79 percent in 1981 to 100 percent in 1983.

Table 80.--Scallops: Canadian production, imports, exports, and apparent consumption, 1979-83

Year	Production <sup>1/</sup>	Imports	Exports	Apparent consumption	Ratio of imports to consumption	Ratio of exports to production
	-----1,000 pounds-----				-----Percent-----	
1979	23,764	1,645	19,913	5,501	30	84
1980	18,718	4,240	16,619	6,339	67	89
1981	23,878	6,855	18,774	11,959	57	79
1982	17,291	4,955	15,112	7,134	69	87
1983	13,523	<sup>2/</sup>	13,522	<sup>2/</sup>	<sup>2/</sup>	100

<sup>1/</sup> Atlantic Canada.

<sup>2/</sup> Not available.

Source: Canadian Fisheries Annual Statistical Review.

The following tabulation shows Canadian per capita consumption of various categories of fish and shellfish during 1979-82 (compiled from official statistics of the Canadian Department of Fisheries and Oceans, in pounds):

Year	Whole fish	Fillets and steaks	Shellfish	All fish and shellfish
1979	1.6	6.6	2.1	15.8
1980	2.6	6.1	1.8	15.1
1981	3.1	5.6	2.2	15.9
1982 <sup>1/</sup>	1.4	5.7	1.9	13.9

<sup>1/</sup> Preliminary.

Canadian per capita consumption of all fish and shellfish decreased irregularly from 15.8 pounds in 1979 to 13.9 pounds in 1980. Per capita consumption of whole fish increased from 1.6 pounds in 1979 to 3.1 pounds in 1981 before falling to 1.4 pounds in 1982. Per capita consumption of fish fillets and steaks decreased from 6.6 pounds in 1979 to 5.7 pounds in 1982. Per capita consumption of shellfish ranged from 1.8 pounds in 1980 to 2.2 pounds in 1981. The general decline in Canadian per capita consumption during 1979-82 may be explained, in part, by increased exports of fish and shellfish products relative to domestic supplies during the period.

## Exports

Canada has been the world's leading exporter of fish products since 1979. In 1983, Canada exported 1.1 billion pounds of fish products, representing 71 percent of total domestic production. The major markets for such exports in 1983 were the United States (60 percent), the European Community (15 percent), and Japan (9 percent). The United States is an even more important market for Canadian exports of groundfish. During 1979-83, 86 percent of the quantity and 89 percent of the value of Canadian exports of groundfish products of the subject species were marketed in the United States. The United States is the leading market for Canadian exports of each of the subject species and product forms of groundfish and scallops.

Canadian exports of whole, fresh cod increased steadily from 3 million pounds, valued at \$1 million, in 1979 to 16 million pounds, valued at \$6 million, in 1983, or by more than fourfold in quantity and value (table 81). The United States was the principal market, accounting for 86 percent of the quantity and 91 percent of the value of the total.

Canadian exports of whole, fresh haddock also increased steadily from 6 million pounds, valued at \$3 million, in 1979, to 25 million pounds, valued at \$10 million, in 1983, more than a threefold increase in quantity and nearly a threefold increase in value (table 81). The United States accounted for virtually all of such exports.

Canadian exports of other whole, fresh groundfish increased irregularly from 13 million pounds, valued at \$4 million, in 1979 to 17 million pounds, valued at \$6 million, in 1983 (table 81). Such exports, believed to be principally flatfish and pollock, were destined principally to the U.S. market.

Canadian exports of whole, frozen cod fluctuated irregularly during 1979-83, ranging from 8 million pounds, valued at \$7 million in 1983 to 17 million pounds, valued at \$10 million, in 1980 (table 82). Such exports to the United States, however, remained relatively stable, increasing from 4 million pounds, valued at \$4 million, in 1979 to 6 million pounds, valued at \$6 million, in 1983. During 1979-83, the United States accounted for 42 percent of the quantity and 55 percent of the value of the Canadian total, substantially less than the share for cod in the whole, fresh form.

Canadian exports of whole, frozen haddock decreased irregularly from 5 million pounds, valued at \$2 million, in 1979 to 2 million pounds, valued at \$1 million, in 1983 (table 82); the United States accounted for the great bulk of such exports.

Canadian exports of other whole, frozen groundfish decreased from 24 million pounds, valued at \$17 million, in 1979 to 15 million pounds, valued at \$14 million, in 1983 (table 82).

Canadian exports of fresh cod fillets increased irregularly from 6 million pounds, valued at \$7 million, in 1979 to 10 million pounds, valued at \$11 million, in 1983 (table 83). The United States accounted for virtually all of such exports during 1979-83.

Table 81.—Whole, fresh groundfish: Canadian exports, to the United States and total, by species 1979-83

Species and market	1979	1980	1981	1982	1983
Quantity (1,000 pounds)					
<b>Cod:</b>					
United States-----	3,049	4,179	6,099	7,569	11,872
Total-----	3,081	4,248	6,402	8,512	15,703
<b>Haddock:</b>					
United States-----	5,821	7,911	14,766	20,490	24,802
Total-----	5,914	7,914	14,816	20,608	24,822
<b>Other:</b>					
United States-----	12,085	12,868	11,877	15,777	16,104
Total-----	12,861	16,137	13,376	18,656	17,115
<b>Total, whole, fresh groundfish:</b>					
United States-----	20,955	24,958	32,742	43,836	52,778
Total-----	21,856	28,299	34,594	47,776	57,640
Value (1,000 dollars)					
<b>Cod:</b>					
United States-----	1,197	1,834	2,778	3,409	5,480
Total-----	1,223	1,893	2,862	3,635	6,470
<b>Haddock:</b>					
United States-----	2,593	3,484	6,101	7,775	9,948
Total-----	2,605	3,487	6,146	7,849	9,964
<b>Other:</b>					
United States-----	2,793	3,553	3,808	5,003	5,016
Total-----	4,479	5,536	4,981	6,288	6,296
<b>Total, whole, fresh groundfish:</b>					
United States-----	6,583	8,871	12,687	16,187	20,444
Total-----	8,307	10,916	13,989	17,772	22,730
Unit value (per pound)					
<b>Cod:</b>					
United States-----	\$0.39	\$0.44	\$0.46	\$0.45	\$0.46
Average-----	.40	.45	.45	.43	.41
<b>Haddock:</b>					
United States-----	.45	.44	.41	.38	.40
Average-----	.44	.44	.41	.38	.40
<b>Other:</b>					
U.S.-----	.23	.28	.32	.32	.31
Average-----	.35	.34	.37	.34	.37
<b>Total, whole, fresh groundfish:</b>					
United States-----	.31	.36	.39	.37	.39
Average-----	.38	.39	.40	.37	.39

Source: Compiled from official statistics of Statistics Canada, Ottawa.

Table 82.—Whole, frozen groundfish: Canadian exports, to the United States and total, by species 1979-83

Species and market	1979	1980	1981	1982	1983
Quantity (1,000 pounds)					
Cod:					
United States-----	4,238	4,829	5,241	5,441	5,595
Total-----	9,147	16,650	13,790	13,269	7,839
Haddock:					
United States-----	3,928	1,569	1,159	1,280	1,251
Total-----	5,442	1,790	1,824	1,920	1,774
Other:					
United States-----	9,080	10,368	6,638	6,202	6,734
Total-----	23,953	34,183	20,861	16,185	15,409
Total, whole, frozen groundfish:					
United States-----	17,246	16,766	13,038	12,923	13,580
Total-----	38,542	52,623	36,475	31,374	25,022
Value (1,000 dollars)					
Cod:					
United States-----	3,630	4,124	4,628	5,646	5,974
Total-----	5,679	9,765	9,740	11,491	7,355
Haddock:					
United States-----	1,527	911	1,025	1,017	949
Total-----	2,463	1,095	1,503	1,504	1,339
Other:					
United States-----	6,142	7,811	5,453	4,820	5,622
Total-----	17,222	23,878	17,705	14,874	14,490
Total, whole, frozen groundfish:					
United States-----	11,299	12,846	11,106	11,483	12,545
Total-----	25,364	34,738	28,948	27,869	23,184
Unit value (per pound)					
Cod:					
United States-----	\$0.86	\$0.85	\$0.88	\$1.04	\$1.07
Average-----	.62	.59	.71	.87	.94
Haddock:					
United States-----	.39	.58	.88	.79	.76
Average-----	.45	.61	.82	.78	.75
Other:					
United States-----	.68	.75	.82	.78	.83
Average-----	.72	.70	.85	.92	.94
Total, whole, frozen groundfish:					
United States-----	.66	.77	.85	.89	.92
Average-----	.66	.66	.79	.89	.93

Source: Compiled from official statistics of Statistics Canada, Ottawa.

Table 83.--Fresh groundfish fillets: Canadian exports, to the United States and total, by species, 1979-83

Species and market	1979	1980	1981	1982	1983
Quantity (1,000 pounds)					
Cod:					
United States-----	6,200	5,022	5,273	6,886	9,633
Total-----	6,224	5,047	5,274	6,886	9,639
Haddock:					
United States-----	2,363	2,188	3,480	2,614	2,871
Total-----	2,365	2,188	3,480	2,614	2,871
Flounder:					
United States-----	456	692	1,131	957	910
Total-----	456	692	1,131	998	910
Other:					
United States-----	3,895	4,613	6,344	7,728	11,982
Total-----	3,913	4,665	6,352	7,778	12,151
Total, fresh groundfish fillets:					
United States-----	12,914	12,515	16,228	18,185	25,396
Total-----	12,958	12,592	16,237	18,276	25,571
Value (1,000 dollars)					
Cod:					
United States-----	6,721	5,667	6,331	8,245	11,448
Total-----	6,747	5,691	6,332	8,245	11,456
Haddock:					
United States-----	2,776	2,849	4,386	3,584	4,013
Total-----	2,780	2,849	4,386	3,584	4,013
Flounder:					
United States-----	647	1,094	1,803	1,587	1,582
Total-----	647	1,094	1,803	1,642	1,582
Other:					
United States-----	3,562	4,792	6,910	8,817	13,956
Total-----	3,583	4,842	6,958	8,901	14,084
Total, fresh groundfish fillets:					
United States-----	13,706	14,402	19,430	22,233	30,999
Total-----	13,757	14,476	19,479	22,372	31,135
Unit value (per pound)					
Cod:					
United States-----	\$1.08	\$1.13	\$1.20	\$1.20	\$1.19
Average-----	1.08	1.13	1.20	1.20	1.19
Haddock:					
United States-----	1.17	1.30	1.26	1.37	1.40
Average-----	1.18	1.30	1.26	1.37	1.40
Flounder:					
United States-----	1.42	1.58	1.59	1.66	1.74
Average-----	1.42	1.58	1.59	1.65	1.74
Other:					
United States-----	.91	1.04	1.09	1.14	1.16
Average-----	.92	1.04	1.10	1.14	1.16
Total, fresh groundfish fillets:					
United States-----	1.06	1.15	1.20	1.22	1.22
Average-----	1.06	1.15	1.20	1.22	1.22

Source: Compiled from official statistics of Statistics Canada.

Canadian exports of fresh haddock fillets remained relatively stable during 1979-83, increasing irregularly from 2 million pounds, valued at \$3 million, in 1979 to 3 million pounds, valued at \$4 million, in 1983 (table 83). The United States again accounted for virtually all of such exports.

Canadian exports of fresh flatfish fillets increased from 456,000 pounds, valued at \$647,000, in 1979 to 1.1 million pounds, valued at \$1.8 million, in 1981 before falling to 910,000 pounds, valued at \$1.6 million, in 1983 (table 83). The United States accounted for virtually all of such exports.

Canadian exports of other fresh groundfish fillets increased from 4 million pounds, valued at \$4 million, in 1979 to 12 million pounds, valued at \$14 million, in 1983 (table 83). The United States was the principal market during the period.

Canadian exports of frozen cod fillets increased steadily from 43 million pounds, valued at \$43 million, in 1979 to 92 million pounds, valued at \$115 million, in 1983, or by more than onefold in quantity and nearly twofold in value (table 84). The United States accounted for 93 percent of the quantity and 95 percent of the value of such exports during 1979-83.

Frozen flatfish fillet exports from Canada fluctuated during the period under review, ranging from 24 million pounds, valued at \$39 million, in 1983 to 38 million pounds, valued at \$54 million, in 1981 (table 84). Virtually all of such exports were destined for the United States.

Canadian exports of frozen haddock fillets decreased irregularly during 1979-83, from 11 million pounds, valued at \$11 million, in 1979 to 5 million pounds, valued at \$7 million, in 1983 (table 84). Exports to the United States accounted for 98 percent of the quantity and value of the total during the period.

Canadian exports of blocks of the subject groundfish increased irregularly from 109 million pounds, valued at \$102 million, in 1979 to 136 million pounds, valued at \$127 million, in 1983, or by about a quarter in quantity and value (table 85). Cod was the principal species, accounting for 88 percent of the quantity and value of Canadian exports of groundfish blocks during 1979-83; the United States was the principal market, accounting for 86 percent of the quantity and 89 percent of the value of total Canadian cod block exports during the period (table 85). Virtually all of Canadian exports of blocks of the remaining species were destined for the United States.

Canadian exports of scallops, virtually all from the Atlantic Provinces, decreased in terms of quantity from 20 million pounds in 1979 to 14 million pounds in 1983 but increased in terms of value from \$67 million in 1979 to \$73 million in 1983 (table 86). Virtually all of such exports were destined for the United States. The decline in the quantity of exports was directly related to the aforementioned decline in landings due to dwindling scallop stocks. The increase in value was caused by increasing unit values owing to short supplies in the U.S. market, especially toward the end of the period.

Table 84.--Frozen groundfish fillets: Canadian exports to the United States and total, by species, 1979-83

Species and market	1979	1980	1981	1982	1983
Quantity (1,000 pounds)					
Cod:					
United States-----	40,025	43,354	65,391	85,077	89,405
Total-----	43,268	49,058	68,392	96,080	92,281
Haddock:					
United States-----	10,608	10,497	11,956	8,356	5,300
Total-----	10,635	10,521	12,259	8,707	5,398
Pollock: <u>1/</u>					
United States-----	11,768	5,664	7,024	7,637	6,459
Total-----	12,075	5,822	7,416	7,869	6,872
Flounder:					
United States-----	34,885	31,949	36,426	32,544	23,149
Total-----	35,107	32,208	37,519	32,929	23,917
Total, frozen groundfish fillets:					
United States-----	97,286	91,464	120,797	133,614	124,313
Total-----	101,085	97,609	125,586	145,585	128,468
Value (1,000 dollars)					
Cod:					
United States-----	40,558	46,444	76,425	104,174	113,148
Total-----	42,963	51,423	79,059	113,319	115,465
Haddock:					
United States-----	11,021	12,435	13,007	10,015	6,882
Total-----	11,047	12,463	13,391	10,477	7,027
Pollock: <u>1/</u>					
United States-----	4,373	3,977	6,016	6,616	4,989
Total-----	4,716	4,121	6,524	6,871	5,480
Flounder:					
United States-----	47,649	44,993	52,579	49,108	37,275
Total-----	47,965	45,419	54,126	49,709	38,509
Total, frozen groundfish fillets:					
United States-----	103,601	107,849	148,027	169,913	162,294
Total-----	106,691	113,426	153,100	180,376	166,481
Unit value (per pound)					
Cod:					
United States-----	\$1.01	\$1.07	\$1.17	\$1.22	\$1.27
Average-----	.99	1.05	1.16	1.18	1.25
Haddock:					
United States-----	1.04	1.18	1.09	1.20	1.30
Average-----	1.04	1.18	1.09	1.20	1.30
Pollock: <u>1/</u>					
United States-----	.37	.70	.86	.87	.77
Average-----	.39	.71	.88	.87	.80
Flounder:					
United States-----	1.37	1.41	1.44	1.51	1.61
Average-----	1.37	1.41	1.44	1.51	1.61
Total, frozen groundfish fillets:					
United States-----	1.06	1.18	1.23	1.27	1.31
Average-----	1.06	1.16	1.22	1.24	1.30

1/ Includes hake and cusk.

Source: Compiled from official statistics of Statistics Canada.

Table 85.--Groundfish blocks: Canadian exports, to the United States and total, by species 1979-83

Species and market	1979	1980	1981	1982	1983
Quantity (1,000 pounds)					
Cod:					
United States-----	91,190	95,440	78,460	87,150	100,749
Total-----	95,334	109,576	93,768	104,001	123,790
Haddock:					
United States-----	2,325	4,125	6,879	1,601	381
Total-----	2,350	4,125	6,880	1,619	381
Pollock:					
United States-----	1,032	3,001	2,019	3,143	4,658
Total-----	1,034	4,206	2,832	3,562	4,659
Flounder:					
United States-----	10,607	8,448	7,270	5,902	7,052
Total-----	10,607	8,456	7,425	5,926	7,052
Total, groundfish blocks:					
United States-----	105,154	111,014	94,628	97,796	112,840
Total-----	109,325	126,363	110,905	115,108	135,882
Value (1,000 dollars)					
Cod:					
United States-----	84,455	89,883	73,481	80,794	101,750
Total-----	87,127	101,365	84,800	93,113	116,125
Haddock:					
United States-----	2,220	4,250	6,629	1,552	422
Total-----	2,231	4,250	6,629	1,556	422
Pollock:					
United States-----	547	1,703	1,365	1,997	2,676
Total-----	548	2,495	1,823	2,303	2,677
Flounder:					
United States-----	11,704	9,717	7,516	6,132	7,964
Total-----	11,704	9,728	7,664	6,149	7,964
Total, groundfish blocks:					
United States-----	98,926	105,553	88,991	90,475	112,812
Total-----	101,610	117,838	100,916	103,121	127,188
Unit value (per pound)					
Cod:					
United States-----	\$0.93	\$0.94	\$0.94	\$0.93	\$1.01
Average-----	.91	.93	.90	.90	.94
Haddock:					
United States-----	.95	1.03	.96	.97	1.11
Average-----	.95	1.03	.96	.96	1.11
Pollock:					
United States-----	.53	.57	.68	.64	.57
Average-----	.53	.59	.64	.65	.57
Flounder:					
United States-----	1.10	1.15	1.03	1.04	1.13
Average-----	1.10	1.15	1.03	1.04	1.13
Total, groundfish blocks:					
United States-----	.94	.95	.94	.93	1.00
Average-----	.93	.93	.91	.90	.94

Source: Compiled from official statistics of Statistics Canada.

Table 86.--Scallops: Canadian exports to the United States and total, 1979-83

Market	1979	1980	1981	1982	1983
Quantity (1,000 pounds)					
United States-----	19,348	16,116	18,641	14,921	13,506
Total-----	19,913	16,619	18,774	15,112	13,522
Value (1,000 dollars)					
United States-----	65,418	65,487	81,819	54,787	72,684
Total-----	67,254	67,462	82,229	55,137	72,777
Unit value (per pound)					
United States-----	\$3.38	\$4.06	\$4.39	\$3.67	\$5.38
Average-----	3.38	4.06	4.38	3.65	5.38

Source: Compiled from official statistics of Statistics Canada, Ottawa.

#### Imports

Canadian imports of the subject groundfish and scallops during 1979-82 are shown in table 87. Imports of whole groundfish ranged from 4 million pounds, valued at \$3 million, in 1981 to 8 million pounds, valued at \$4 million, in 1980. The bulk of such imports entered in the fresh form; the United States was the principal supplier. The level of Canadian whole groundfish imports is relatively small compared with Canadian landings; such imports are believed to result from seasonal fluctuations in supplies and prices between New England and Nova Scotia which cause the influx of whole fish from the United States.

Canadian imports of the subject groundfish fillets remained relatively constant during 1979-82 at 3 million pounds, valued at from \$3 to \$5 million annually. Most of such imports are frozen; the principal supplier is the United States. Canadian imports of groundfish blocks ranged from 9 million pounds, valued at \$8 million, in 1981 to 13 million pounds, valued at \$12 million, in 1979; the United States was the principal supplier. Canadian imports of frozen groundfish fillets and blocks are mainly the result of shifts in inventories of product that may originally have been produced in Canada, as the major Canadian producers of frozen groundfish products maintain distribution facilities in the United States.

Canadian imports of scallops ranged from 485,000 pounds, valued at \$2 million, in 1979 to 2 million pounds, valued at \$7 million, in 1981. The bulk of such imports are frozen; the principal supplier is the United States. Again, such imports are believed to be mainly the result of inventory movements.

Table 87.--Groundfish and scallops: Canadian imports from the United States and total, by product forms, 1979-82

Item	1979		1980		1981		1982	
	Total	United States	Total	United States	Total	United States	Total	United States
Quantity (1,000 pounds)								
Whole fish:								
Fresh-----	3,483	3,470	6,605	6,598	3,153	3,104	4,415	4,140
Frozen-----	1,761	45	1,149	388	963	381	838	695
Total whole fish-----	5,244	3,922	7,754	6,986	4,116	3,485	5,253	4,835
Fillets:								
Fresh-----	1,076	1,054	785	745	776	739	675	644
Frozen-----	2,059	1,885	1,845	1,709	2,414	2,000	2,476	2,096
Total fillets-----	3,135	2,939	2,630	2,454	3,190	2,738	3,151	2,740
Total whole and fillets-----	8,379	6,861	10,384	9,440	7,306	6,224	8,404	7,575
Scallops:								
Fresh-----	31	31	183	183	592	591	264	263
Frozen-----	454	406	902	712	1,153	1,118	1,049	1,027
Total scallops-----	485	437	1,085	895	1,745	1,709	1,313	1,290
Blocks, frozen--	13,014	12,901	9,777	9,572	8,503	8,382	9,311	9,192
Value (1,000 U.S. dollars)								
Whole fish:								
Fresh-----	1,064	1,036	1,923	1,911	1,337	1,239	1,719	1,492
Frozen-----	4,228	587	2,327	607	2,161	763	1,919	614
Total whole fish-----	5,292	1,623	4,250	2,518	3,498	2,003	3,638	2,106
Fillets:								
Fresh-----	524	494	523	464	631	576	924	855
Frozen-----	2,619	2,333	2,619	2,424	3,943	2,829	3,736	3,022
Total fillets-----	3,143	2,827	3,141	2,888	4,573	3,405	4,660	3,907
Total whole and fillets-----	8,435	4,450	7,392	5,406	8,072	5,407	8,298	6,013
Scallops:								
Fresh-----	147	147	671	671	2,204	2,197	1,080	1,062
Frozen-----	1,498	1,339	3,569	2,923	4,651	4,485	3,875	3,813
Total scallops-----	1,645	1,486	4,240	3,594	6,855	6,682	4,955	4,875
Blocks, frozen--	11,901	11,815	9,613	9,479	8,362	8,270	8,495	8,400

Source: Canadian Fisheries Annual Statistical Review.

Note.--Because of rounding, figures may not add to the totals shown.

## COMPETITIVE CONDITIONS

The Northeastern U.S. market is one of the world's largest markets for groundfish and scallop products. In addition to the domestic industry, which supplies the majority of the fresh product, several major groundfish and scallop producing nations export these products, primarily in frozen form, to this market. The last 5 years have seen increases in groundfish imports, both fresh and frozen, as some imported products increased their market share.

The competition that exists in the Northeastern U.S. market between domestically produced groundfish and scallop products and those produced in foreign countries is influenced by a variety of conditions. The competitive conditions that are discussed below are price, product quality, resource availability, product availability, transportation, marketing, exchange rates, government assistance, and the U.S.-Canadian maritime boundary dispute.

## Price

Individual fish products (e.g., frozen cod fillets; fresh whole flatfish) are largely homogeneous and marketed in the Northeastern United States by a large number of buyers and sellers; as such, prices--especially for perishable fresh product--are determined in competitive markets and can fluctuate widely on a daily basis.

Ex-vessel prices are the initial prices at the lowest marketing level for groundfish. Ex-vessel prices are the actual prices received by fishermen for their daily catch. Prices vary according to species and are determined primarily by the conditions of supply and demand that prevail in the marketplace.

Two daily auctions, one in Boston and the other in New Bedford, set or influence ex-vessel prices throughout the Northeastern United States. That this continues to be the case, even though relatively little groundfish is sold at the Boston auction, is due largely to the concentration of major buyers and processors in these two ports. Whole fish landed in other ports or trucked in from Canada are brought to these two ports for processing and distribution. Hence, ex-vessel prices for much of the fish landed elsewhere in the region are set according to the auction price, less a transportation discount. This discount is frequently less than \$0.05 per pound of fish from New England ports but can be significantly higher, particularly for areas farther from the auction areas. For example, a commercial scallop fisherman in Cape May, New Jersey, a large Mid-Atlantic scalloping center, claimed that buyers for his scallops generally offered 20 to 40 cents per pound less than the New Bedford auction price. <sup>1/</sup>

These auction prices are determined competitively, with daily prices fluctuating according to the volume of fish landed at the auction sites or supplied from other sources, including imports. While buyer concentration is typically high in any one port, the effective ex-vessel

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<sup>1/</sup> Telephone conversations with Commission staff.

market is a regional one. Buyers frequently purchase fish from vessels in more than one port, and fishermen often have the option of landing their fish in other than their home port.

The Boston auction price may not be entirely representative of the daily activity of the market since it includes only a fraction of the total quantities of domestic daily landings and rarely includes imported groundfish. The auction price is a measure of the price of domestic groundfish at a particular point in time, early in the day. Imports are not directly included in the determination of this price, although they very likely have an effect to the extent there is adequate information available at the time of the auction. The market price can fluctuate hourly and certainly drops as the day progresses and the perishability of the fish creates a buyers market. Actual prices paid for fresh groundfish are negotiated on a transaction-by-transaction basis and quality considerations and other exogenous factors will cause deviations from the auction price.

Other factors that may influence prices and prevent measuring the expected relationships include the weather and expectations of changes in the weather. Severe winter weather may completely curtail fishing for days. Heavy seas and icy conditions will cause suspension of fishing in some of the richer fishing banks that are further from U.S. ports. The reason for this is that the average U.S. fishing vessel is not large enough to withstand the harsh conditions that may prevail in bad weather. Expected inclement weather may cause buyers to increase their purchases of available fish and thus drive prices up as the product becomes scarce.

Supplies in previous periods may also have an effect on daily prices. In periods when supply is plentiful, the early morning auction price may be influenced by the previous day's domestic catch or the availability of imports. Imperfect information on the size of the regionwide daily catch or of the price of the imports from Canada may also cause deviations in the auction price. Finally, changes in the levels of demand for the processed product will alter the buyers decisions and could influence the daily price mechanism.

Annual average ex-vessel prices for groundfish and scallops, based on unit values of Northeastern U.S. landings, fluctuated during 1979-83, and showed an overall upward trend (table 88). Monthly ex-vessel prices (table 89) fluctuate considerably, not only seasonally with landings, but between consecutive months. For instance, the ex-vessel price of pollock decreased from \$.48 in October, 1983, to \$.14 in November, a decrease of 71 percent in one month.

Daily ex-vessel prices, represented by the published Boston auction ("blue sheet") price, fluctuate even greater on a daily basis. Figure 10 shows daily ex-vessel prices for cod landed at Boston during January-June 1983. Such prices ranged from 27 cents per pound to 90 cents per pound during the period and rarely remained constant for more than a few days at a time.

Ex-vessel prices of groundfish and scallops in Atlantic Canada, based on unit values of Atlantic coast landings, did not fluctuate significantly from one year to the next during 1979-83 (table 90). Moreover, monthly ex-vessel prices were also lower and more stable than prices in the Northeastern United States for similar species (table 91, figures 11-13).

Table 88.--Northeastern U.S. ex-vessel prices for cod, flatfish, haddock, pollock, and scallops, 1979-83

(Per pound)						
Year	Cod	Flatfish	Haddock	Pollock	Scallops	
1979-----	\$0.29	\$0.47	\$0.42	\$0.19	\$3.34	
1980-----	.27	.41	.39	.17	4.96	
1981-----	.33	.49	.40	.23	4.10	
1982-----	.36	.53	.50	.22	3.70	
1983-----	.34	.52	.57	.17	5.61	

Source: Compiled from official statistics of the U.S. Department of Commerce, National Marine Fisheries Service.

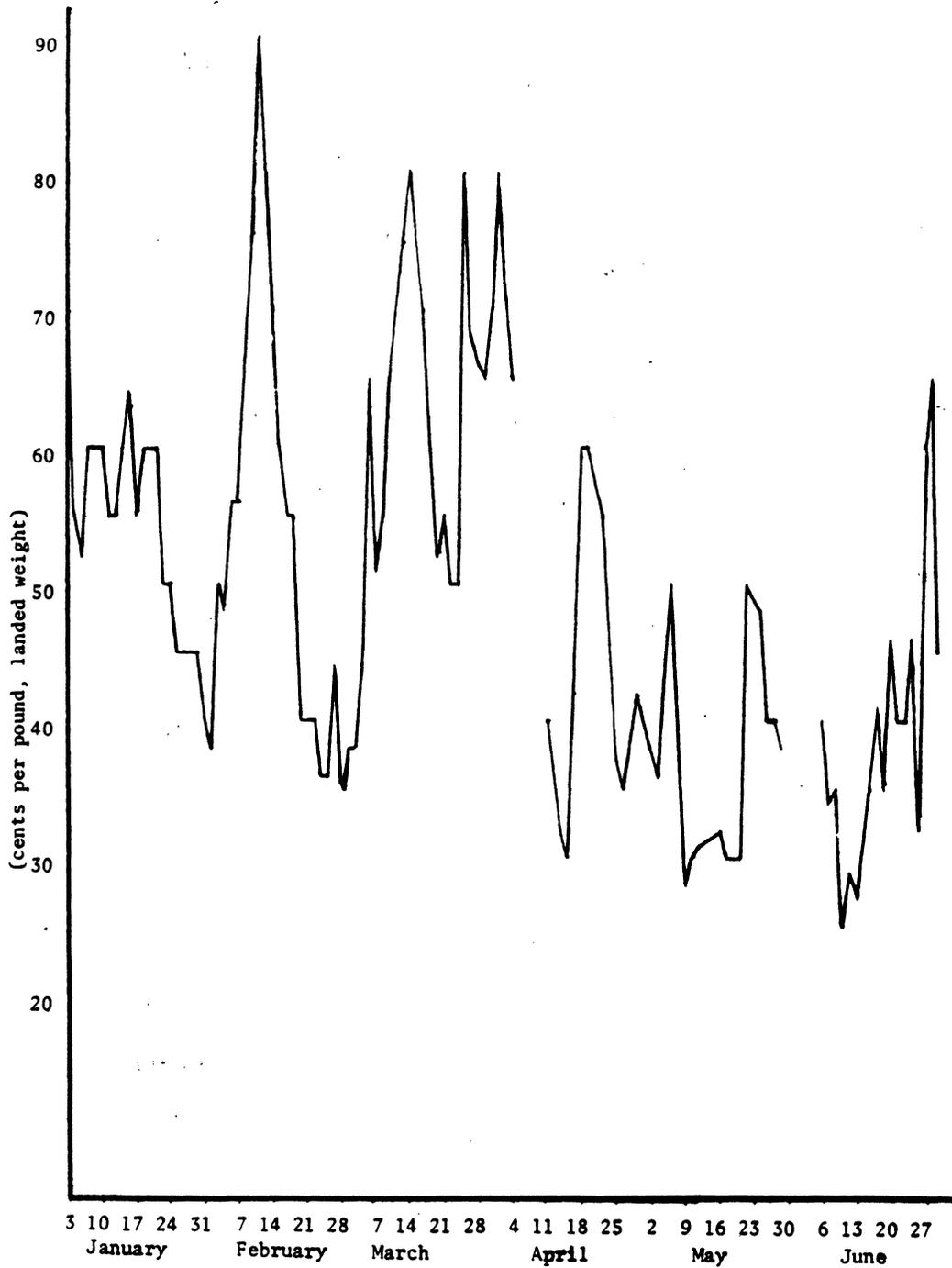
Table 89.--Northeastern U.S. monthly ex-vessel prices for cod, flatfish, haddock, pollock, and scallops, 1983 1/

(Per pound)						
Month	Cod	Flatfish	Haddock	Pollock	Scallops	
January-----	\$0.38	\$0.49	\$0.54	\$0.20	\$4.56	
February-----	.35	.71	.53	.24	4.54	
March-----	.41	.62	.71	.50	4.52	
April-----	.31	.44	.50	.28	4.75	
May-----	.27	.36	.61	.20	4.93	
June-----	.26	.35	.42	.13	5.60	
July-----	.29	.49	.62	.14	6.09	
August-----	.39	.50	.58	.15	6.37	
September-----	.35	.58	.59	.30	6.48	
October-----	.43	.66	.70	.48	6.94	
November-----	.39	.63	.80	.14	6.47	
December-----	.37	.54	.79	.13	6.25	

1/ Preliminary.

Source: Compiled from unpublished statistics of the U.S. Department of Commerce, National Marine Fisheries Service.

Figure 10.--Daily Boston ex-vessel prices for market cod, January-June 1983.



Source: Compiled from official statistics of the National Marine Fisheries Service.

Table 90.--Atlantic Canada ex-vessel prices for cod, flatfish, haddock, pollock, and scallops, 1979-83

(Per pound)

Year	Cod	Flatfish	Haddock	Pollock	Scallops
1979	\$0.12	\$0.10	\$0.18	\$0.09	\$2.67
1980	.13	.11	.19	.10	3.13
1981	.14	.10	.17	.07	3.48
1982	.14	.11	.18	.11	2.84
1983	.14	.11	.22	.09	4.21

Source: Canadian Fisheries Annual Statistical Review.

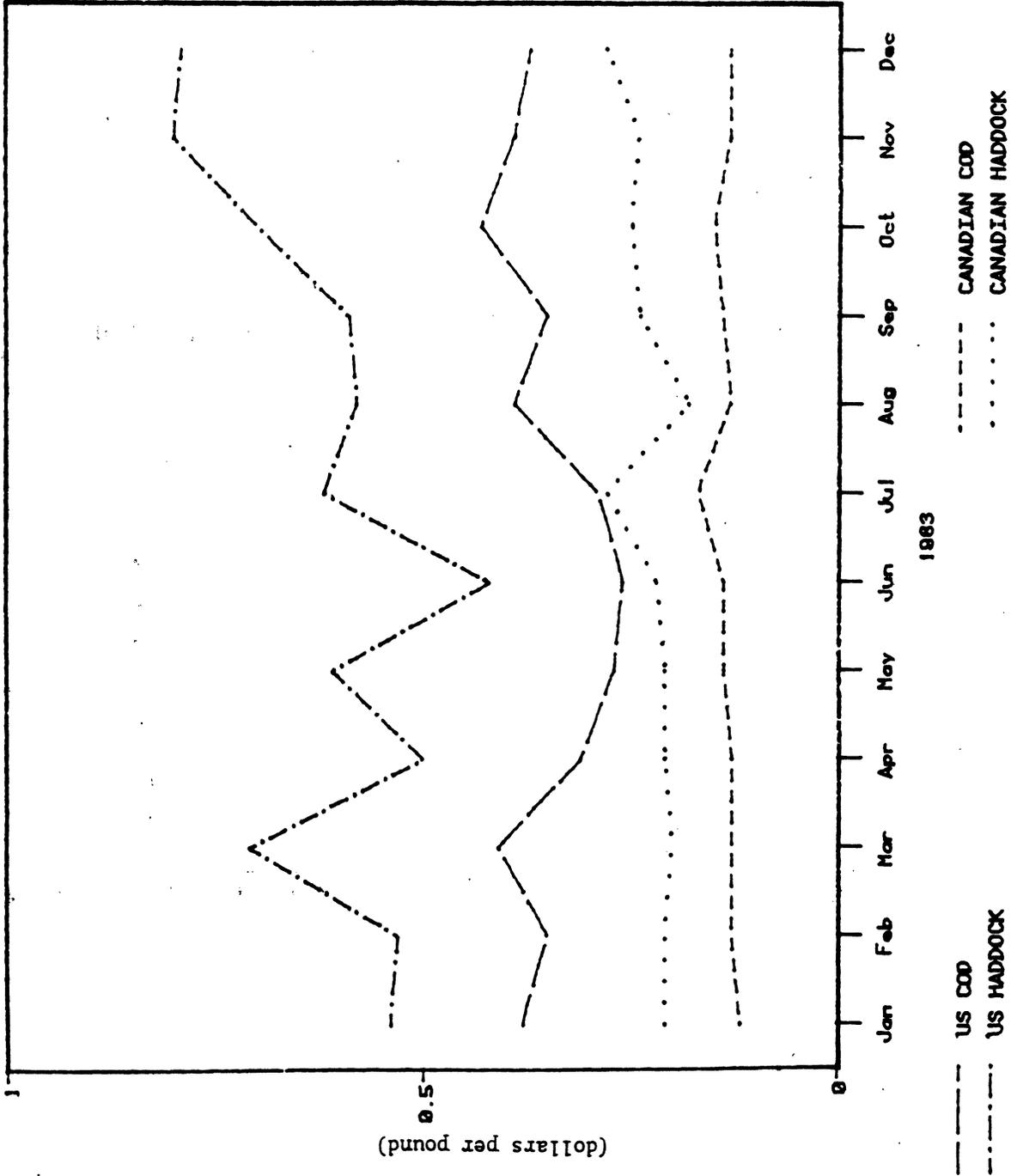
Table 91.--Atlantic Canada monthly ex-vessel prices for cod, flatfish, haddock, pollock, and scallops, 1983

(Per pound)

Month	Cod	Flatfish	Haddock	Pollock	Scallops
January	\$0.12	\$0.11	\$0.21	\$0.08	\$3.88
February	.13	.11	.21	.09	3.91
March	.13	.11	.20	.08	3.87
April	.13	.11	.21	.11	3.86
May	.14	.15	.21	.09	3.74
June	.14	.11	.22	.09	3.89
July	.17	.12	.28	.09	4.22
August	.13	.11	.18	.10	4.54
September	.14	.11	.24	.10	4.74
October	.15	.12	.25	.10	5.10
November	.13	.11	.24	.11	4.22
December	.13	.10	.28	.11	5.09

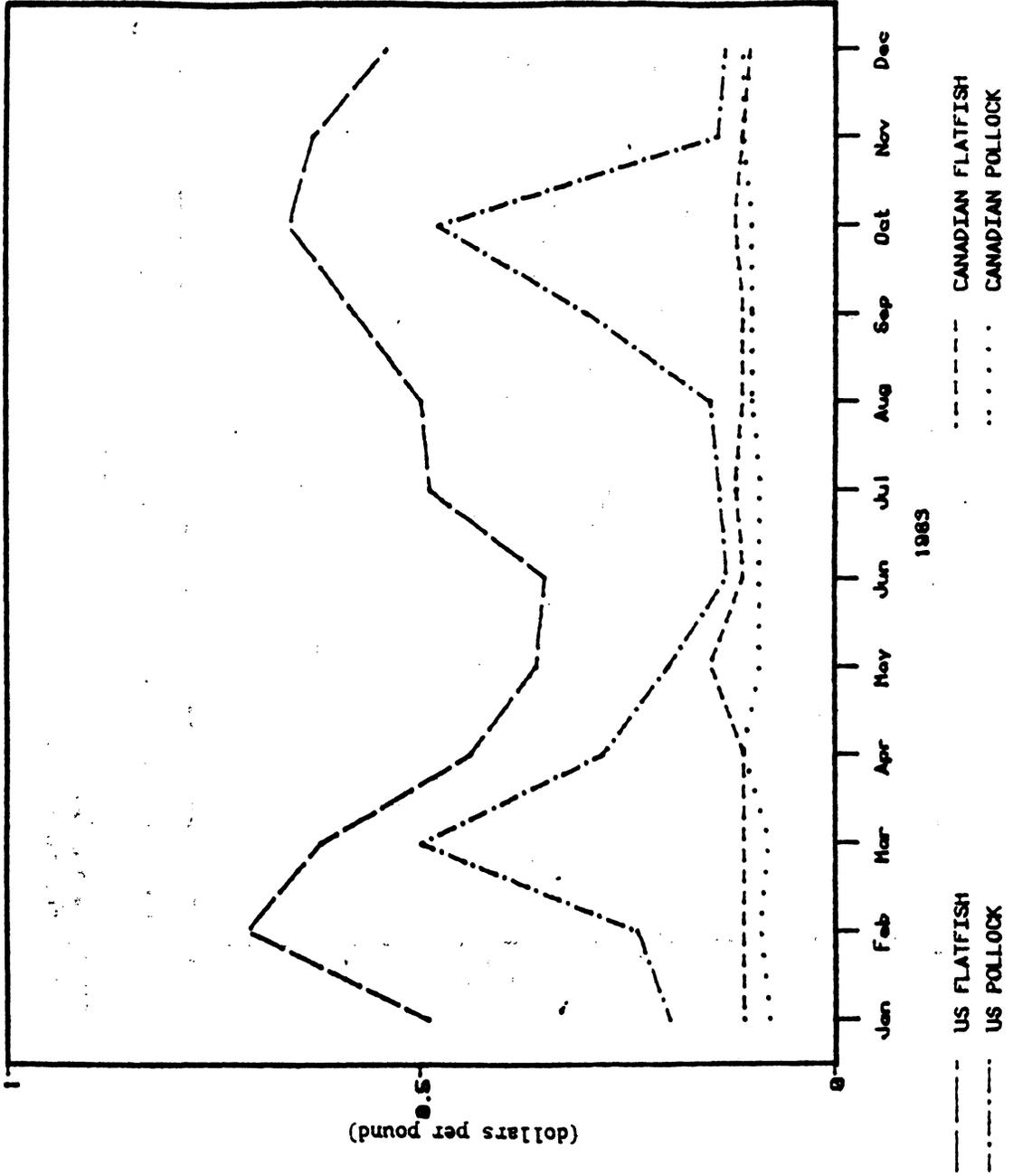
Source: Compiled from official statistics of the Department of Fisheries and Oceans, Ottawa.

Figure 11.--Average monthly Northeastern U.S. and Atlantic Canada ex-vessel prices for cod and haddock, 1983



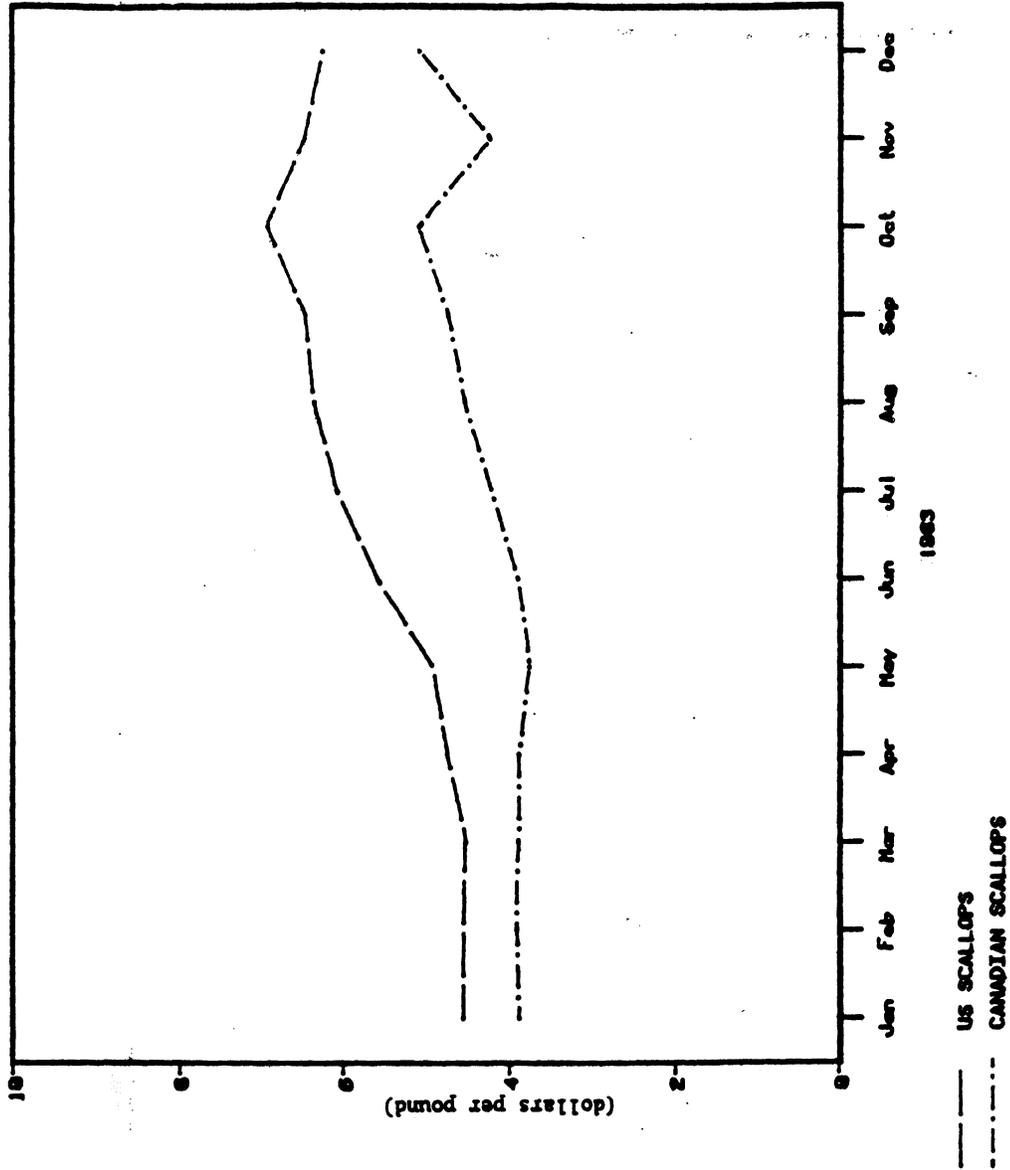
Source: Compiled from official statistics of the National Marine Fisheries Service.

Figure 12.--Average monthly Northeastern U.S. and Atlantic Canada ex-vessel prices for flatfish and pollock, 1983.



Source: Compiled from official statistics of the National Marine Fisheries Service

Figure 13.--Average monthly Northeastern U.S. and Atlantic Canada prices for scallops, 1983.



Source: Compiled from official statistics of the National Marine Fisheries Service.

Ex-vessel prices in Canada are considerably lower than corresponding prices in the Northeastern United States, as shown in tables 87 and 89. Prices for cod in the Northeastern United States, for example, averaged 31.8 cents per pound during 1979-83, rising from \$0.29 in 1979 to \$0.34 in 1983. In contrast, Atlantic Canada cod prices averaged 13.4¢ per pound during 1979-83, rising from 12¢ in 1979 to 14¢ in 1983. Ex-vessel prices for cod in Canada were less than one-half the corresponding Northeastern U.S. cod prices, on average, during 1979-83.

The above Canadian prices, however, apply to combined inshore-offshore cod harvests; as noted earlier, offshore ex-vessel prices are not representative of the cost of offshore fish, as they represent only returns to labor. 1981 is the last year for which separate data on inshore and offshore landings are available. The average inshore ex-vessel cod price in 1981 was 15¢ per pound, while the average offshore price was 12¢ per pound. The inshore price, applicable to 53 percent (by quantity) of the 1981 cod harvest in Atlantic Canada, was still less than one-half the 1981 ex-vessel cod price in the Northeastern United States of 33¢ per pound. Inshore prices in Canada are lower than corresponding Northeastern U.S. prices for various reasons, including apparently significant market power on the buying side; low opportunity cost of labor in inshore fishing; and high seasonality of landings, which concentrates inshore fish supplies into a few months of the year, when supplies of fresh fish in the United States are also high. Data on Canadian offshore trawler operations are not available; hence, there is no indication as to how reflective the quoted offshore prices are of offshore ex-vessel costs.

The role market power plays in determining ex-vessel prices in Atlantic Canada versus the Northeastern United States is a key issue in relative competitiveness of the industries. In the Northeastern United States, market power regionwide--on either the buying or selling side--is slight, particularly in the fresh fish market. Sellers are, of course, numerous and independent of one another. Buyers are more concentrated on a port-by-port basis; but the relevant "market" is larger than a single port, and buyer concentration diminishes. Virtually all domestically landed groundfish and scallops are marketed fresh; the homogeneity of groundfish landed "round," or gutted and bled, adds to the competition between market participants in the fresh markets. Despite some flaws, such as imperfect information transfer and what is sometimes a buyer's market for perishable fresh fish, fresh groundfish and scallop markets in the Northeastern United States are highly competitive, and ex-vessel prices change daily or hourly to reflect fluctuating supply and demand.

Conversely, groundfish markets in Atlantic Canada are characterized at the ex-vessel level by extensive concentration on the buying side. As noted earlier, as much as 85 percent of frozen groundfish fillet production is in the hands of the two largest firms; concentration in fresh groundfish production is believed to be lower, but field interviews with officials of National Sea Products, the largest fish processor in Atlantic Canada, indicated that that firm may be responsible for the bulk of fresh fish marketing in Nova Scotia, the principal source of fresh Canadian groundfish exports to the United States. On a port-by-port basis, a Canadian study presented evidence that some 31 Newfoundland ports, or 43 percent of the total, had fewer than 3 buyers in 1979 and noted that "one can infer that

concentration of buying in Nova Scotia is greater than Newfoundland" due to the offshore-orientation of the harvesting sector in Nova Scotia. 1/

Fresh fish exports to the United States come primarily from Nova Scotia, and to a significant extent from small, independent seller-processors, dealers, and fishermen who buy from others as well as market their own fresh fish. 2/ These sellers base their decisions on how much fresh fish to market to the United States on prices in the U.S. market vis-a-vis those offered by the dominant Atlantic Canada processing firms in the frozen and saltfish markets. These latter prices, as evidenced by the monthly prices in table 91, are characterized by remarkable stability, especially when compared with corresponding prices in the Northeastern United States (table 89). The smaller fresh fish dealers are "price takers" in both the U.S. fresh fish market, where they add to the daily supply and thus tend to depress prices, and the frozen/salt fish markets in Canada, where prices are effectively determined by the three dominant buyers, the two large integrated processing firms and the Canadian Saltfish Corporation (which markets the bulk of Canadian saltfish production). When prices in U.S. fresh fish markets rise relative to frozen/saltfish prices, as they tend to do in the colder months, exports of whole groundfish to the U.S. rise; when U.S. prices are relatively low, more is channelled into the markets of the large processors. This surge in exports of fresh whole fish in the winter months is particularly evident in the case of cod, which accounted for 19 percent of all fresh whole groundfish exports to the U.S. during 1979-1983. As shown in table 74, U.S. imports of fresh whole cod (99.9 percent of which is from Canada) peak during November-March and reach a low during June-July, this despite a peak in cod landings in Atlantic Canada during May-July and a low point during November-January (table 41).

As a result, prices for fish destined for frozen or salt fish markets--"administered" by the dominant firms in these markets 3/--appear to directly influence the level of exports of whole groundfish to fresh markets in the United States by affecting the decision-making of the independent fish dealers in Nova Scotia. These exports, in turn, have the likely effect of depressing the cyclical seasonal pattern of ex-vessel prices in the Northeastern United States by augmenting supplies in the colder months, when domestic supplies are low.

Canadian fresh whole groundfish competes directly against U.S. fresh whole groundfish at both the ex-vessel and wholesale levels. The Canadian fish entering the Northeastern U.S. market is priced in a variety of ways. First, a price may be prearranged, based on the Boston auction price (usually less a discount that is probably related to real or perceived quality differences or unequal market power of the Canadian exporter vis-a-vis the U.S. buyer). Also, fish is trucked to the Northeastern U.S. market on consignment, without the price being previously determined. And, the price can be fixed by contract (usually short-term), particularly directly between Canadian exporters and U.S. retailers, an increasingly common procedure which

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1/ Marvin Shaffer and Associates, Ltd., op.cit., pp.48-49.

2/ Testimony of James Wilson, Portland (Maine) hearing transcript, p.69.

3/ Ibid, p.70.

bypasses traditional middlemen in the United States who further process and package the fish. Finally, sales are made to U.S. subsidiaries of Canadian firms, common among the largest Canadian processors, usually at predetermined prices. <sup>1/</sup> The methods which have competitive effects on U.S. auction prices are the former two, when Canadian fish competes side by side with domestic landings for the supply requirements of Northeastern U.S. processors.

Published data on U.S. ex-vessel prices and unit values of imports from Canada of whole fish into the Northeastern U.S. region are given in table 92. Comparisons can only be made between the Northeastern U.S. and Atlantic Canada flatfish and cod, since U.S. import statistics for haddock and pollock are not reported separately. Cod and flatfish, however, represent a substantial portion both of U.S. landings and of U.S. imports from Canada.

Average annual Northeastern U.S. cod ex-vessel prices were lower than unit customs values of Northeastern U.S. whole, fresh cod imports from Canada during 1979-83. This may be due to the fact that the bulk of the imports enter during periods of low U.S. landings when prices are highest. Flatfish ex-vessel prices in the Northeastern U.S. were significantly higher than the import unit values during the period, owing in large part to the predominance of higher valued species, such as yellowtail flounder, landed domestically.

Table 93 presents a comparison of fresh fillet prices between the U.S. and Canada for cod and flatfish using unit values of Northeastern U.S. production of fillets and unit customs values of Northeastern U.S. imports of Canadian fillets as a proxy for such prices. The Northeastern U.S. production values may be understated because they are based on an in-plant production value and not an actual market price. However, the Northeastern U.S. fresh fillet values are consistently higher than those for fresh Canadian fillets. This may reflect quality considerations noted previously.

An important reason why the U.S. price of imports of fresh Canadian fillets is lower than corresponding prices of domestically-produced fillets is the previously-mentioned difference in ex-vessel prices between Canada and the United States. The ex-vessel price of landed fish, or alternatively, the raw material cost of production, accounts for

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<sup>1/</sup> A remarkably widely held misconception, common among Canadian and Northeastern U.S. industry members alike, concerns the mechanics of the New England Fish Exchange, the so-called Boston auction. Contrary to repeated statements voiced during field interviews and Commission hearings, it is not at all illegal for trucked-in fresh fish (Canadian or otherwise) to be sold on the Exchange. Such sales rarely occur (although staff have observed occasional Maine and Massachusetts truckloads sold at the auction), but they are certainly legal, per the rules of the Exchange ("Rules and Regulations: New England Fish Exchange, Jan. 15, 1935, p.3). One advantage to selling on the auction board is that such sellers are paid within 24 hours, whereas direct sales to buyers at the Fish Pier are not completed for up to 30 days or more.

Table 92.--Whole, fresh cod and flatfish: Northeastern U.S. ex-vessel prices and unit customs values of Northeastern U.S. imports from Canada, 1979-83

Year	(Per pound)			
	Cod		Flatfish	
	United States	Canada	United States	Canada
1979-----	\$0.29	\$0.35	\$0.47	\$0.26
1980-----	.27	.36	.41	.30
1981-----	.33	.39	.49	.35
1982-----	.36	.40	.53	.33
1983-----	.34	.38	.52	.37

Source: Compiled from official statistics of the U.S. Department of Commerce.

Table 93.--Fresh cod and flatfish fillets: Unit values of Northeastern U.S. production and unit customs values of Northeastern U.S. imports from Canada, 1979-83

Year	(Per pound)			
	Cod fillets		Flatfish fillets	
	United States	Canada	United States	Canada
1979-----	\$1.45	\$1.09	\$1.95	\$1.29
1980-----	1.45	1.11	1.90	1.26
1981-----	1.68	1.16	2.09	1.48
1982-----	1.61	1.17	1.97	1.58
1983-----	1.47	1.13	1.71	1.50

Source: Compiled from official statistics of the U.S. Department of Commerce.

the bulk of the wholesale selling price of processed fresh and frozen groundfish and, especially of scallop products. The ex-plant unit value of fresh cod fillets, for example, in the Northeastern United States was \$1.61 per pound, of which \$0.91, or 59 percent, was accounted for by raw material costs. 1/ Comparable proportions for fresh fillets of haddock, pollock, and flatfish were 68 percent, 46 percent, and 79 percent, respectively. 2/ For

1/ Based on an average landed value of \$0.36 per pound for round cod and a conversion factor of 2.63 for converting round cod weight to filleted weight.

2/ Based on average per-pound landed values of \$0.50, \$0.22, and \$0.53, and conversion factors of 2.50, 2.50, and 2.94 for haddock, pollock, and flatfish, respectively.

fresh scallop production, the raw material is typically landed virtually completely processed, and, thus, about 90 percent of the ex-plant price of fresh scallops is composed of raw material cost.

In Atlantic Canada, the ex-plant unit value of fresh cod fillets in 1981 averaged US\$1.05, of which \$0.37, or 35 percent, was accounted for by raw material cost. Comparable percentages for fresh fillets of haddock, pollock, and flatfish were 33 percent, 38 percent, and 19 percent, respectively. On a per-pound basis, the cost of raw material in the production of fresh groundfish fillets is lower in Atlantic Canada than in the Northeastern United States on both an absolute basis and a relative one to wholesale prices.

Along with the cost of raw material, labor constitutes one of the largest cost components incurred in fish processing, and may explain a large part of the differential in U.S.-Canadian fish product prices. Direct labor costs account for 12 to 15 percent of the selling price of fresh groundfish processed in New England plants. <sup>1/</sup> Although data on unit labor costs for Canadian fresh groundfish processing are not available, it is likely that labor constitutes a similarly high proportion of total cost.

Wage rates in New England fish processing appear to differ widely from those in Atlantic Canada. The wage rate for "floor men" <sup>2/</sup> in one typical New Bedford processing plant during the period April 1, 1982 through March 31, 1983, as determined from the workers' union contract, was \$7.85 per hour, exclusive of fringe benefits, which totaled \$1.45 per hour, for a total cost of labor to the employer of \$9.30 per hour.

In a typical trawler-fed plant in Newfoundland, the comparable job classification outlined in the workers' union contract was "job grades I-III." <sup>3/</sup> During the period July 15, 1982 through September 15, 1982, hourly wage rates for job grades I-III ranged from \$6.80 to \$7.00 (Can.), or from \$5.50 to \$5.67 (U.S.), exclusive of fringe benefits. Data on fringe benefits paid by the employer are not available.

In "independent" processing plants along the Southwest shore of Nova Scotia, the "top paid" fish cutters are paid \$6.70 (Can.), or \$5.00 (U.S.), per hour, according to a Canadian fisheries researcher. <sup>4/</sup> These plants are believed to produce most of the fresh groundfish fillets that are exported to the Northeastern United States.

Yet another factor affecting relative costs and prices of fish products in the United States and Canada is labor productivity. On the basis of data provided earlier in the report (which includes for Canada production of species and products other than those of concern in this investigation), it would appear a further reason for relatively low prices of Canadian groundfish products may be higher (and rising) productivity in Canadian fish processing.

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<sup>1/</sup> Georgianna and Dirlam, op. cit.

<sup>2/</sup> Involves culling, weighing, packing, storing, and icing of seafood.

<sup>3/</sup> Packers, wrappers, weighers, and other floor workers.

<sup>4/</sup> Testimony of Professor Leigh Mazany, Portland hearing transcript, pp. 129-130.

The United States produces a relatively small quantity of frozen fillets because imports supply the majority of the U.S. market. Canada was the leading source of imports of frozen cod fillets, followed by Iceland, Denmark, and Norway. The unit value of the Canadian imports was the lowest, while the unit values of the imports from Iceland, Denmark, and Norway were higher and approximately equal to each other. The price edged up steadily though, for all five countries over the 5-year span (table 94). The unit value of the Northeastern U.S. production of frozen flatfish fillets was consistently higher than the unit value of Northeastern U.S. imports of such fillets from the Netherlands and Canada, the principal foreign suppliers (table 95).

Retail prices of fresh groundfish fillets in the U.S. market are presented in table 96. Retail price data were collected for fillets of cod, haddock, and flatfish (average of all types). The highest priced species is flatfish, which averaged \$3.46 per pound in 1983, both because of a higher processing cost (lower yield of fillets per pound of whole fish) and because of consumer preferences for large-volume species such as yellowtail flounder. Fresh haddock fillets were less expensive, averaging \$3.33 per pound in 1983, with cod the least expensive, averaging \$2.78 per pound in 1983. Retail prices of all species trended upward during 1979-83.

Retail prices of frozen groundfish fillets in the U.S. market are presented in table 97. Frozen groundfish fillets are almost always lower in price at the retail level than fresh fillets of the comparable species. This reflects, in part, consumer attitudes toward frozen fish with respect to perceived quality differences. Retail price differentials between frozen and fresh groundfish fillets are typified by 1983 average prices; at \$2.16 per pound, retail frozen cod fillet prices were 78 percent of retail fresh cod fillet prices; frozen haddock fillets, at \$2.78 per pound, were 83 percent of fresh haddock fillet retail prices; and, frozen flounder fillet prices, at \$2.94 per pound, were 85 percent of fresh flounder fillet prices.

As the products flow down the marketing chain, it becomes harder to distinguish their countries of origin. When groundfish reaches the retail market, the majority of the products are cumulated with imports and origin statistics are not kept. Also, retail prices are incomplete indicators of the cost of fish products to consumers because a substantial amount of total fish consumption is accounted for by restaurants and institutions. The price paid by the consumer is not readily apparent in these outlets. To the extent fish is channeled through these markets, it is difficult to determine how differences and trends in wholesale prices are reflected in retail price trends.

In either the retail market or the restaurant trade, fresh and frozen groundfish and scallops are not often marketed to the consumer differentiated by country of origin. There is currently no law requiring producers to state the country of origin on fishery products, although some producers of frozen fish products and some restaurants do so voluntarily, presumably because such information increases demand for those products. Icelandic groundfish, for example, is often labeled as such, as it enjoys a reputation for high quality. In many restaurants in coastal New England, for example, fish entrees are promoted (sometimes inaccurately) as containing fresh New England fish. However, rarely is the consumer given a choice between domestic and imported fish in any given entree; hence, there is no price advantage possible to one source over another.

Table 94.- Frozen cod fillets: Unit values of Northeast U.S. production and unit customs values of Northeastern U.S. imports from Canada, Iceland, Denmark, and Norway, 1979-83

(Per pound)					
Year	United States	Canada	Iceland	Denmark	Norway
1979	\$1.34	\$1.03	\$1.31	\$1.28	\$1.25
1980	1.36	1.10	1.36	1.35	1.35
1981	1.69	1.20	1.41	1.42	1.37
1982	1.50	1.22	1.51	1.54	1.38
1983	1.37	1.26	1.42	1.52	1.32

Source: Compiled from official statistics of the U.S. Department of Commerce.

Table 95.--Frozen flatfish fillets: Unit values of Northeast U.S. production and unit customs values of Northeastern U.S. imports from Canada and the Netherlands, 1979-83

(Per pound)			
Year	United States	Canada	Netherlands
1979	\$1.71	\$1.39	\$1.52
1980	1.42	1.43	1.59
1981	1.73	1.45	1.49
1982	1.70	1.54	1.58
1983	1.66	1.62	1.50

Source: Compiled from official statistics of the U.S. Department of Commerce.

Table 96.- U.S. retail prices for fresh cod, haddock, and flounder fillets, 1979-83 <sup>1/</sup>

(Per pound)			
Year	Cod	Haddock	Flounder
1979	\$2.36	\$2.59	\$2.86
1980	2.40	2.78	2.63
1981	2.53	2.82	3.07
1982	2.81	3.19	3.44
1983	2.78	3.33	3.46

<sup>1/</sup> 10-city average.

Source: Compiled from official statistics of the U.S. Department of Commerce.

Table 97.--U.S. retail prices for frozen cod, haddock, and flounder fillets, 1979-83 1/

(Per pound)			
Year	Cod	Haddock	Flounder
1979-----	\$2.00 :	\$2.29 :	\$2.58
1980-----	2.03 :	2.61 :	2.80
1981-----	2.18 :	2.61 :	2.87
1982-----	2.17 :	2.66 :	2.87
1983-----	2.16 :	2.78 :	2.94

1/ 10-city average.

Source: Compiled from official statistics of the U.S. Department of Commerce.

In sum, there are obvious factors giving a clear price advantage to Canadian producers over Northeastern U.S. producers of groundfish and scallops. For all species of groundfish and scallops under consideration in this investigation, ex-vessel prices prevailing in Atlantic Canada have been consistently lower than corresponding prices in the Northeastern United States. Reasons for this ex-vessel price difference include apparently significant monopsony power among Canadian processors and dealers; low opportunity cost of labor employed in inshore fishing in Atlantic Canada vis-a-vis the Northeastern United States; and, relatively high seasonality of landings in the inshore groundfish fisheries of Atlantic Canada.

In the Northeastern U.S. market, the price advantage at the wholesale market level for groundfish fillets also appears to favor Canada. This is essentially because of the ex-vessel price factor mentioned above, since this factor comprises a large portion of total fresh fillet production costs. In addition, labor costs are lower in Canada than in the Northeastern United States, principally a result of lower wage rates.

At the retail level, a price advantage is not as apparent. Groundfish and scallop products at the retail outlet or in the restaurant and institutional trade are not often labeled by country of origin. When they are, as is sometimes the case in restaurants, the consumer generally is not given a choice between different origins of the same product. Thus, price competition at the retail level is minimal. It is, instead, reflected at the ex-vessel and wholesale levels where retailers and other distributors buy their supplies.

#### Product Quality

For a variety of reasons, fish quality differences have not generally been directly accounted for at the ex-vessel level of sales, at least not until very recently. There are many institutional and structural barriers to overcome before price premiums or discounts can be paid for varying levels of quality in landings. For one, in comparison with other meat products for

human consumption, fish alone is not subject to mandatory Government inspection during processing (although the National Marine Fisheries Service provides a voluntary inspection service at processors' expense. There were 33 Northeastern U.S. establishments participating in this program in 1983, producing 325.3 million pounds of fish products under Federal inspection). Consequently, there are no industry-wide standards or measures of quality (e.g., texture, color, and firmness). Also, many, if not most, fish processors in the region have little incentive to offer substantially higher prices for higher quality fish, particularly when their products are highly processed, since many of their customers cannot perceive or are unwilling to appreciate any but the most obvious quality differences in their products. Those processors who have discriminating customers sometimes will pay higher prices and/or seek out vessels or other sellers with reputations for delivering high quality fish, but these processors are a minority (albeit growing in number). Without higher prices to compensate them for the added effort required to maintain high fish quality, fishermen, in turn, have little incentive to deliver anything above the average (minimum) acceptable quality.

Some alternatives to the single price-single grade system of pricing at the dock have developed, although they are hard to document. At the Boston and New Bedford auctions for example, vessel owners frequently "get cut" by buyers: the vessel's catch is bid for at the auction sight-unseen, with the price bid assuming reasonably good quality landings of fish. When the vessel is brought to the plant for unloading, the buyer may balk at the agreed-upon auction price, offering instead a lower price on the grounds that the actual quality of the catch is less than should reasonably be expected. The fisherman is at a disadvantage in terms of bargaining power, as he must take the lower price, try to find another plant to sell to, or wait until the next day's auction when he has fish one day older. Thus, a multitiered pricing system is created, with the auction price serving as a top-grade quality benchmark from which discounts are made for lower quality.

Another means by which quality differences are taken into account centers on the reputation a vessel owner develops over time. If, as is often the case, certain vessels consistently bring in top quality fish or consistently bring in poor quality fish, they will develop reputations for such behavior among buyers in the port. A vessel with a reputation for good quality fish will then be sought out by buyers and enjoy higher prices. This presumably creates incentives for other vessels to improve their on-board handling practices and thus land higher quality fish.

Poor fish quality has long been a problem with Canadian fish products in world markets. <sup>1/</sup> Aside from problems similar to those in the Northeastern United States concerning transactions between fish buyers and fishermen, other factors play a role in the quality problem. As noted earlier, fish from inshore harvesters, caught in warm coastal waters, is frequently of softer flesh and has in the past suffered from careless handling. Offshore vessels, on the other hand, while harvesting fish that is originally of firmer texture, take very long trips, often lasting two weeks and longer, and consequently land fish that has been out of the water for long periods of time. These and other factors contribute to an historically poor reputation for Canadian fish producers.

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<sup>1/</sup> Task Force on Atlantic Fisheries, op. cit., pp. 257-259.

In both the Northeastern United States and Atlantic Canada, measures are being taken to improve the quality of fish products. The New England Fisheries Development Foundation, an industry trade organization funded largely with Federal funds, has made efforts in recent years to change the institutional constraints that preclude quality price premiums for Northeastern U.S. landed fish. In 1982, the Foundation set up a trawler in New Bedford with insulated fish boxes and trained the crew to handle the fish so as to maintain high quality (cease the use of pitchforks to unload fish from vessels, the use of more ice in the holds, and so forth). Industry-wide adoption of these practices, however, has been slow. In Canada, the Federal government, in recent years, has instituted several components of an overall quality improvement program, including regulations concerning vessel and equipment specifications (e.g., requiring that fish holds have covers and banning the use of pitchforks), assistance in the acquisition of insulated fish boxes and other equipment, and the training and employment of fish graders to act as relatively objective judges of the quality of fish at ex-vessel level transactions. This program, combined with a government-sponsored promotion of Canadian fish in Canadian and U.S. markets, is intended to improve the actual and perceived quality of Canadian fish products in domestic and international markets.

Consumers may generally perceive domestic fish (if so labeled) as being of higher quality because it is presumed to be "fresher" than imported fish that has had to travel a longer distance to market. However, because the origin of the product often cannot be determined at the retail level, the advantage thus given to domestic fish may largely disappear. As a result, one way to differentiate an industry segment's product is to produce--or create the impression of--an improved quality product. This creates a type of brand preference, and results in increased demand and greater sales.

In sum, the relatively good reputation earned by Northeastern U.S. fishermen and processors regarding product quality provides them with an advantage over foreign competitors in fresh groundfish and scallop markets. However, there is room for improvement on both sides with respect to overcoming various institutional and structural barriers to improving fish product quality, and as competition for new markets increases and awareness of the importance played by product quality in fish demand grows, improving quality of fish from both sides of the border is becoming more urgent.

In the frozen markets, consistent supply combines with consistently high quality to give a definite edge to Icelandic and Scandinavian suppliers vis-a-vis Canadian suppliers. <sup>1/</sup> This is reflected in higher prices prevailing in U.S. wholesale markets for such products; premiums are paid for top quality frozen fish products such as blocks, because principal buyers (e.g., major quick-service restaurant chains) rely on consistently high-quality products to maintain steady demand.

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<sup>1/</sup> Frozen groundfish produced in the Northeastern United States generally is channeled into different markets, such as the Defense Department, and the volume of such production is small compared with imports from Canada, Iceland, and Scandinavia.

## Resource Availability

The quantity of fish available to Northeastern U.S. fishing vessels relative to that available to fleets of competing nations carries considerable implications for the competitiveness of Northeastern U.S. fishermen. Not only does the total supply available affect competitiveness in terms of the proportion of the market served by domestic production, but the concentration of that resource influences efficiency insofar as catch per unit effort is higher the greater the biomass of the resource (the quantity of fish) on a given fishing ground.

The following tabulation shows the annual availability of groundfish species to Northeastern U.S. and Atlantic Canada fishermen (data covers the period prior to the delimitation of the U.S.-Canadian maritime boundary--see below). Resource availability to U.S. vessels is estimated using maximum sustainable yield (MSY), the largest annual harvest that can be sustained in the long run. That available to Canadian vessels is approximated by the Canadian quota from the Total Allowable Catch, a concept related to MSY. Canadian fishermen are in principle restricted from catching more than their quota; U.S. fishermen are not so legally bound; however, catch rates above MSY must eventually result in lower catches. Thus, in both cases the estimates presented below may be regarded as upward limits on resource availability (in millions of pounds):

<u>Species</u>	<u>U.S. MSY</u>	<u>Canadian Quota (1984)</u>
Cod-----	99.2	1218.4
Haddock-----	114.6	125.7
Pollock-----	24.7	93.5
Flatfish-----	<u>205.0</u>	<u>275.4</u>
Total-----	443.5	1713.0

Clearly, the Canadian fishing industry enjoys an advantage in terms of the absolute size of the resource available to it. The quantity of cod available to Canadian vessels in 1984 was 1,218 million pounds, more than 12 times the MSY of cod in the waters off the Northeastern United States. The Canadian quota for haddock of 125.7 million pounds is 10 percent greater than the U.S. MSY of haddock. The Canadian pollock quota of 93.5 million pounds is nearly four times the pollock availability to Northeastern U.S. vessels. Finally, the Canadian quota for flatfish of 275.4 million pounds is about one-third larger than the U.S. MSY for flatfish.

It should be noted that for the United States the MSY does not adequately reflect the near-term availability of some currently-depleted species. Some stocks, notably haddock, are still recovering to long-run population levels, and total catches by Northeastern U.S. fishing vessels have been considerably lower than MSY for several years. The greatest haddock catch during 1979-1984 was only 55 million pounds in 1981, and has declined steadily since (table 11). While the same depleted stock conditions hold for a number of Canadian fisheries, the use of the Canadian quota as a measure of availability adjusts for the effects of such depletion, as the quotas in depleted fisheries are set below MSY to enhance recovery. Therefore, the estimates of U.S. resource availability may be overstated for the short-run.

Total supply of a resource available to an industry is only one factor affecting the competitive influence of resource availability. Also important is the efficiency with which that resource can be exploited. For example, it would be of little use to Canada to have vastly larger fish resources than the United States if those resources were spread out over a proportionately larger geographic area. However, simple comparisons of fish biomass versus maritime area is not sufficient since in both nations' jurisdictions there are substantial areas where there are negligible fish resources.

Comparing catch per unit effort between U.S. and Canadian vessels is a rudimentary way of assessing the likely competitive impact arising from differing resource availability. The greater the resource stock in a given area, the higher the catch per unit effort for vessels in that fishery should be. The following tabulation presents catch per day fished (CPDF) and catch per man-day fished (CPMDF) for equal-size groundfish draggers and scallopers in New England versus Southwest Nova Scotia (1982 data in pounds; source: tables 23 and 43):

<u>Vessel size</u>	<u>New England</u>	<u>Nova Scotia</u>	<u>NE/NS</u>
Catch per day fished:			
45-foot dragger-----	6,398	7,133	0.90
60-foot dragger-----	13,779	10,942	1.26
106 to 111 foot dragger--	1,198	1,549	.77
Catch per man day fished:			
45-foot dragger-----	3,199	1,877	1.70
60-foot dragger-----	2,756	2,669	1.03
106 to 111 foot dragger--	109	97	1.12

The results of a comparison of catch per day fished are not conclusive: an apparent advantage is enjoyed by the Canadian 45-foot dragger and the scalloper, and by the U.S. 60-foot dragger. The results of a comparison of catch per man-day fished, however, are more consistent: in each vessel category, the U.S. vessel has a clear advantage in this measure of catch per unit effort. This relative physical efficiency of vessel operations in the United States acts to offset the advantage enjoyed by Canada with respect to absolute size of fish resources.

#### Product Availability

Because of vastly greater resources available to Atlantic Canadian fishermen compared with those available to Northeastern U.S. fishermen, the total supply of fish products from Canadian producers is greater than from U.S. sources. However, because of the relatively low population in Canada, most of the groundfish and scallop production of Atlantic Canada is sold in the next most accessible market--the United States. Northeastern U.S. fishermen provide a minority of the total supply of groundfish in the Northeastern U.S. region, the bulk coming instead from Canada.

Canadian producers are thus in a position to more readily provide large quantities of fish products to U.S. buyers than are domestic producers. While this advantage is not of great importance in small, localized markets in the Northeastern United States, it can play a potentially large role in the expansion of markets in other areas in the United States.

When Northeastern U.S. companies, for example, wish to sell in Midwest markets, they have often found resistance from large buyers, such as restaurant chains, concerned that the firm could not supply a large or consistent volume of product. Northeastern U.S. landings, compared with those in Atlantic Canada, are unreliable with respect to particular species. The ability to guarantee supply of large volumes of a single product type clearly rests with Canadian producers, whose raw material base is larger and more constant year-round.

### Transportation

With respect to over-the-road (by truck) transportation of fresh and frozen fish in Northeastern U.S. markets, domestic fishermen clearly have an advantage over their Canadian counterparts. The principal markets for fish in the region are urban areas from Boston southward. The bulk of fish processing is carried out in Massachusetts ports, and most of the regions' groundfish and scallops are landed or trucked there. Estimates of transportation costs from Maine and Rhode Island ports to the primary processing areas in Massachusetts range from 3 to 6 cents per pound, a small portion of the total cost of the dressed fish, which may range from \$0.25 to \$1.00 per pound. From the processing plants to markets along the eastern seaboard, costs of transportation of groundfish fillets and processed scallops can range from 5 to 20 cents per pound, again a small portion of the processed products' price. To ship groundfish and scallops from Atlantic Provinces to Massachusetts or New York processors requires over-the-road shipment to Halifax, Nova Scotia, and a ferry to Portland or Bar Harbor, Maine, or over-the-road shipment from New Brunswick through Maine, either of which involves higher transportation costs for the Canadian products. Particularly with fresh groundfish, time is a crucial factor, and transportation of fresh groundfish from Atlantic Canada to, say, Boston creates a potential disadvantage to Canadian sellers vis-a-vis their Northeastern U.S. competitors, particularly in New England.

The U.S. advantage in transportation is reduced for marketing in the Midwest or West. The difference in distance between these markets and the Northeastern United States and Atlantic Canada is reduced in relative terms; both regions' producers must ship long distances. Development of air transport channels has recently been undertaken by both nations' industries in an effort to expand the market areas for fresh fish.

The following tabulation shows air transportation rates for seafood from Boston, Massachusetts, Halifax, Nova Scotia, and St. John's, Newfoundland to Chicago, Illinois, Dallas, Texas, and Los Angeles, California, (based on

weight categories of Air Canada, in dollars per pound, quoted by major U.S. and Canadian carriers, effective Nov. 1, 1984):

<u>Origin and weight</u>	<u>Destination and rate</u>		
	<u>Chicago</u>	<u>Dallas</u>	<u>Los Angeles</u>
Boston:			
220 pounds-----	<u>1/</u> \$0.27	<u>2/</u> \$0.29	<u>3/</u> \$0.47
440 pounds-----	<u>4/</u> .21	<u>5/</u> .29	<u>6/</u> .30
2,200 pounds-----	<u>7/</u> .15	<u>8/</u> .23	<u>9/</u> .25
Halifax or St. John's:			
220 pounds-----	<u>10/</u> .26	<u>10/</u> .26	<u>10/</u> .26
440 pounds-----	<u>11/</u> .24	<u>11/</u> .24	<u>11/</u> .24
2,200 pounds-----	<u>12/</u> .20	<u>12/</u> .20	<u>12/</u> .20

- 1/ EH container; flat rate \$59.00.  
2/ 250 pounds minimum; rate \$29.00 per 100 pounds.  
3/ EH container; flat rate \$103.00.  
4/ E container; flat rate \$94.00.  
5/ 250 pounds minimum; rate \$29.00 per 100 pounds.  
6/ E container; flat rate \$134.00.  
7/ LD3 container; flat rate \$321.00.  
8/ 1,000 pound minimum; rate \$23.00 per 100 pounds.  
9/ LD3 container; flat rate \$559.00.  
10/ 100 kilogram rate; currency converted by August 1984 exchange rate (US \$1=Can\$1.3035).  
11/ 200 kilogram rate; currency converted by August 1984 exchange rate (US \$1=Can\$1.3035).  
12/ 1,000 kilogram rate; currency converted by August 1984 exchange rate (US \$1=Can\$1.3035).

The following tabulation shows the same rates calculated based on the maximum container weights for major U.S. air cargo carriers:

<u>Origin and weight</u>	<u>Destination and rate</u>		
	<u>Chicago</u>	<u>Dallas</u>	<u>Los Angeles</u>
Boston:			
300 pounds-----	\$0.20	\$0.29	\$0.34
500 pounds-----	.19	.29	.27
3,150 pounds-----	.10	.20	.18
Halifax or St. John's:			
300 pounds-----	.26	.26	.26
500 pounds-----	.24	.24	.24
3,150 pounds-----	.20	.20	.20

These rates cannot be directly compared, as the rate for each individual shipment may vary by weight and destination and the system by which the rates are determined are different for U.S. air carriers and Air Canada (the principal Canadian air carrier). However, from the rates calculated for the

weight categories above, it appears that air transportation costs do not differ greatly for seafood shipments from Boston and Halifax or St. John's to major U.S. markets outside the Northeastern U.S. region. Therefore, there appears to be no clear competitive advantage in air transportation (and, thus transportation to major U.S. markets outside the Northeastern region) for Northeastern U.S. or Atlantic Canada groundfish and scallop producers.

The air transportation rates given above for seafood are special cargo rates and are significantly lower than general cargo rates in both the United States and Canada. Officials of the U.S. and Canadian carriers said the reason for the lower rates for seafood was to generate more business for shipping seafood by air in major seafood production and distribution areas (i.e., Boston, Halifax, and St. John's).

### Marketing

Owing to their proximity to U.S. markets, Northeastern U.S. fishermen have a marketing advantage because of lower costs and consumer perception of domestic fish as being fresher. This is true generally of traditional markets in the Northeastern United States, but the advantage decreases as markets are opened in other parts of the United States. In recent years, inroads have been made by Northeastern U.S. and Atlantic Canada fish producers alike in markets in the Midwest, West, and South. According to information obtained during Commission field interviews, fresh groundfish fillets are flown almost daily into Boston from Iceland enroute to Midwest markets. Attempts have also been made to market fresh groundfish fillets from Atlantic Canada in a similar manner to West Coast markets. One Boston fish processor reported that the bulk of his fresh groundfish fillet production is sold in U.S. markets outside the Northeastern region. This apparently is a growing trend among Northeastern U.S. groundfish processors, as they attempt to gain higher prices in less competitive areas. To the extent that producers of domestic fish can sell direct to retailers and avoid middleman transactions, they have an advantage over those foreign producers and importers who do not have established market channels, particularly small, fresh fish producers and new firms, who must employ middlemen in the United States to find customers.

### Exchange Rates

Table 98 presents nominal and real (deflated by the respective nation's Producer Price Index) exchange rate indexes of the U.S. dollar vis-a-vis major fish exporting nations' currencies.

In nominal terms, the value of Denmark's krone, Iceland's krona, and the Norwegian krone declined substantially vis-a-vis the U.S. dollar. The Icelandic krona declined 85.8 percent over the period 1979-83, and the currencies of Denmark and Norway declined 42.5 percent and 30.6 percent, respectively. In contrast, the Canadian dollar remained fairly strong, dropping only 4.5 percent in nominal terms.

Because of high inflation rates in the exporting nations, the changes in the real exchange rates between the U.S. dollar and the other four currencies were less extreme than the fluctuations in the nominal rates. During 1979-83,

Table 98.--Real and nominal exchange rate indexes vis-a-vis U.S. dollar:  
Danish krone; Icelandic krona; Norwegian krone; and Canadian dollar, 1979-83

(1979=100)					
Year	Danish krone	Icelandic krona	Norwegian krone	Canadian dollar	
Nominal:					
1979-----	100.0	100.0	100.0	100.0	100.0
1980-----	93.3	73.5	102.5	102.5	100.2
1981-----	73.9	48.8	88.2	88.2	97.7
1982-----	63.1	28.5	78.5	78.5	95.5
1983-----	57.5	14.2	69.4	69.4	95.5
Real:					
1979-----	100.0	100.0	100.0	100.0	100.0
1980-----	94.0	102.1	103.4	103.4	99.7
1981-----	77.1	93.6	90.5	90.5	98.2
1982-----	71.6	80.0	83.8	83.8	99.1
1983-----	67.8	73.0	77.5	77.5	101.3

Source: Compiled from statistics of the International Monetary Fund

in real terms, the Danish krone depreciated 32.2 percent against the U.S. dollar, the Icelandic krona depreciated 27 percent, and the Norwegian krone fell 22.5 percent; however, the Canadian dollar appreciated 1.3 percent. Because Northeastern U.S. imports of the subject groundfish and scallops from Canada are the most prevalent in the Northeastern U.S. market, a more indepth exchange rate analysis follows.

Quarterly exchange rates between the U.S. dollar and the Canadian dollar from 1979-83 followed the same trend as the full year averages, as shown in table 99. The nominal value of the Canadian dollar in terms of the U.S. dollar declined gradually from January-March 1979 to April-June 1984 by a total of 8.8 percent. However, when these figures are adjusted for inflation by the Producer Price Index, the real U.S.-Canadian dollar exchange rate fell by only 1.6 percent. This occurred because the Canadian inflation rate has been rising significantly faster than the U.S. inflation rate during the period.

In the longer run, over the 5-year period 1979-83, the relative stability of the real exchange rate virtually eliminated it as a factor affecting competition between Atlantic Canada and Northeastern U.S. groundfish and scallop producers. The higher inflation rate in Canada offset the higher value of the U.S. dollar, reducing incentives or disincentives to trade that would otherwise have resulted from fluctuations in nominal exchange rates.

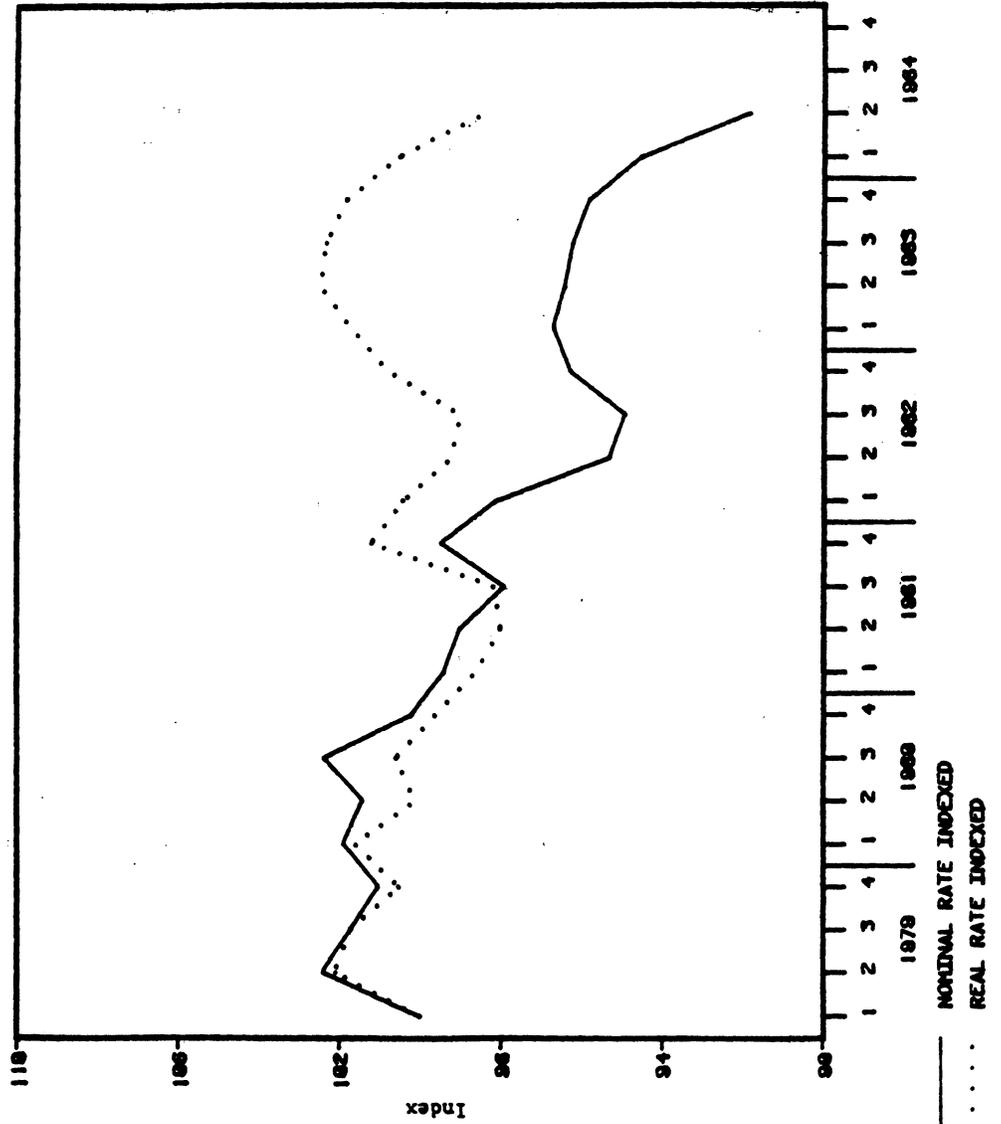
In the shorter run, within the past two years, the situation may have been different. From January-March 1983 to April-June 1984, the nominal value of the Canadian dollar fell an additional 5.5 percent, and the real value fell 3.3 percent. Most of the decline in both the nominal and real rates occurred during the first half of 1984 (fig. 14).

Table 99.--Quarterly exchange rates between U.S. and Canadian dollars, 1979-83

(January-March 1979=100)			
Period	U.S. dollars per Canadian dollars (nominal rate indexed)	U.S. dollars per Canadian dollars (real rate indexed)	
1979:			
January-March	100.0	100.0	
April-June	102.4	102.1	
July-September	101.7	101.0	
October-December	101.0	100.5	
1980:			
January-March	101.9	101.6	
April-June	101.4	100.1	
July-September	102.4	100.6	
October-December	100.2	99.6	
1981:			
January-March	99.4	98.6	
April-June	99.0	98.0	
July-September	97.9	98.2	
October-December	99.5	101.2	
1982:			
January-March	98.1	100.4	
April-June	95.3	99.2	
July-September	94.9	99.0	
October-December	96.3	100.8	
1983:			
January-March	96.7	101.7	
April-June	96.4	102.5	
July-September	96.2	102.3	
October-December	95.8	101.8	
1984:			
January-March	94.8	100.5	
April-June	91.2	98.4	

Source: Compiled from statistics of the International Monetary Fund.

Figure 14.--Exchange rate index, nominal and real, of U.S. dollars per Canadian dollar, first quarter 1979-second quarter 1984. (first quarter 1979=100)



Source: International Monetary Fund, Financial Statistics, Monthly.

In addition to changes in the U.S.-Canadian exchange rate, any changes in the exchange rates between Canada and her trading partners in the EC could also have an effect on the supply of Canadian groundfish to be exported to the United States because the EC is a market for exports of Canadian groundfish fillets and blocks. Table 100 shows indexes for the exchange rates of the currencies of West Germany and the United Kingdom vis-a-vis the Canadian dollar. During 1981-84, the Canadian dollar appreciated in real terms by 26.3 percent vis-a-vis the Deutsche mark and 45.6 percent against the British pound. The effect left Canadian groundfish at a much higher real price in European nations, possibly diverting exports to the United States where a more favorable relative exchange rate existed.

The sharp decline in the value of the Icelandic and Scandinavian currencies vis-a-vis the Canadian dollar could also influence the product mix of Canadian fish exports to the United States. Iceland, Canada, and Scandinavia are principal rivals for the U.S. frozen groundfish market. With increased price pressure against Canada brought on by the exchange rate changes mentioned above, it seems likely this pressure had an influence in shifting the product mix of Canadian exports from frozen product forms to fresh ones, where competition for markets is less adversely affected by recent exchange rate changes. This could help explain, for instance, the sharp rise in exports of fresh cod (whole and fillets) to the United States in the first half of 1984, which were 54 percent higher in quantity and 45 percent higher in value than the corresponding period in 1983, despite a 17 percent decline in the quantity of cod landings in Atlantic Canada during the same period.

Table 100.--Currency exchange rate indexes of West Germany (deutsche marks), and the United Kingdom (pounds) vis-a-vis the Canadian dollar, by quarters, January-March 1981-January-March 1984

(January-March 1981=100)			
Period	Deutsche marks per Canadian dollar (real rate indexed)	British pounds per Canadian dollar (real rate indexed)	
1981:			
January-March-----	100.0	100.0	
April-June-----	108.4	109.5	
July-September-----	114.6	123.8	
October-December-----	107.4	121.7	
1982:			
January-March-----	110.3	121.0	
April-June-----	109.6	122.4	
July-September-----	113.8	125.4	
October-December-----	115.6	132.1	
1983:			
January-March-----	113.5	141.6	
April-June-----	118.1	138.5	
July-September-----	125.5	142.5	
October-December-----	126.3	144.4	
1984: (January-March)-----	126.3	145.6	

Source: Compiled from data from the Bank of Canada, Review, 1984. <sup>197</sup>

## Government Assistance

One of the more controversial issues relating to the relative competitiveness of the Northeastern U.S. fishing industry vis-a-vis its Canadian and Scandinavian competitors focuses on the extent of government financial assistance provided to the respective industries. The very nature of commercial fishing frequently leads such an industry to a position where its members are overcapitalized and earning low returns; the long history of commercial fishing in most countries in which it exists, moreover, combines with this tendency toward financial difficulties to create political incentives for government support.

The issue of government assistance in the United States and Canadian fishing industries is a contentious one. All but 2 of the 22 witnesses testifying on behalf of the Northeastern U.S. fishing industry at the Commission hearings made allegations of government "subsidies" supporting the Canadian industry and forcing down prices in U.S. markets. The arguments focus on the alleged cost-reducing effects of gear and vessel assistance, and the support of high levels of production (and export) of fish products through income-maintenance schemes and support of insolvent firms. The latter prevents the normal exit of inefficient firms and rationalization of the industry which would otherwise occur absent such financial assistance. Of particular concern is the recent "restructuring" of the offshore harvesting and integrated processing sectors of the industry, a \$200 million infusion of cash into the largely insolvent giant firms that have controlled some three-quarters of the fresh and frozen groundfish industry in recent years. As a result, large-scale bankruptcy and industry-wide instability was averted, and, in the view of some in both the U.S. and Canadian industries, control of the Canadian industry by a few dominant corporations was enhanced.

Canadian industry representatives downplay the significance of such assistance. Characterizing the assistance as "piecemeal, ad hoc and relatively small rather than comprehensive, long-range and substantial," <sup>1/</sup> witnesses testifying on behalf of the Canadian industry alleged that, rather than reducing costs to their industry, many programs, such as the vessel construction assistance, mainly help the industries supplying the equipment, such as shipbuilders. These firms, it is alleged, raise the price of their product by the amount of the assistance, eliminating any benefit to the fishermen. This result is not, of course, what was intended by the government, but some of the programs are politically difficult to eliminate now that they have been in place so long. The extent to which such behavior on the part of equipment or vessel suppliers can be successfully carried out depends on the nature of supply and demand for the particular product in question; in particular, the fewer the alternative sources of supply for the buyer, the greater the ability of the supplier to transfer the benefits of the assistance from the buyer to the supplier. No reliable information to back this claim of the Canadian industry representatives could be obtained by the Commission.

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<sup>1/</sup> Ronald W. Bulmer, "Submission of the Fisheries Council of Canada in ITC Investigation No. 332-173", August 22, 1984, p. 33.

The following tabulation shows, for 1982, the total direct expenditures of government agencies of the United States and competing nations for financial assistance the fishing industry and total processed fisheries production in each country (data from the U.S. Department of Commerce, National Marine Fisheries Service; the Canadian Department of Fisheries and Oceans; and the OECD) (in millions of dollars): 1/

<u>Country</u>	<u>Assistance</u>	<u>Production value</u>
Northeastern United States-----	\$28.8	\$1,300
Atlantic Canada-----	105.6	1,160
Denmark-----	136.9	900
Norway-----	158.0	900

Data for Iceland for 1982 are not available. It should be noted that these data represent minimum estimates of assistance and include grants, loans, and loan guarantees, but exclude many expenditures on general social development in each country which would not be targeted exclusively at the fishing industry but may indirectly assist it, such as small business assistance programs.

In comparing the relative levels of support to the fishing industries of the above nations, the relative sizes of those industries should be kept in mind. With approximately \$1.3 billion in total processed fisheries production in 1982, the Northeastern U.S. fishing industry is 12 percent larger than that of Atlantic Canada, which produced some \$1.16 billion worth of fisheries products in 1982. While data on processed production value for 1982 in Denmark and Norway are not available, an approximation of industry size can be made using export value, given the highly export-oriented nature of those nations' fishing industries. On that basis, the Northeastern U.S. fishing industry is 45 percent larger than the \$900 million Danish industry, and the \$900 million Norwegian industry. Hence, the low level of Government assistance in the Northeastern United States is made more apparent when the size of that industry is compared with those of competing nations.

Government assistance to the Northeastern U.S. fishing industry appears to be less broad in scope than that provided in Canada, Denmark, or Norway. Not only are the proportions larger, but the variety of activities to which the assistance is directed is greater among these competing nations. Direct assistance to the industry of the Northeastern United States consists of loan guarantees for vessel and shoreside-facility acquisition, federal tax deferral for vessel construction and repair, compensation for certain gear damage, and market development programs. Canadian assistance includes the above, plus

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1/ All data correspond to all fishing activities in each country, including activities related to species other than groundfish and scallops.

price support programs; vessel, gear, and equipment acquisition grants; tax rebates for fuel, and special unemployment insurance for fishermen. Government assistance in the Danish fisheries consists of a price-support program administered in conjunction with the EC, loans for vessel and processing plant acquisition, and gear acquisition grants. Norway's assistance includes a vessel buy-back program, income-support schemes, as well as loans to fishermen and processors for capital acquisition.

In sum, the array of activities for which assistance to the fishing industry can be sought is greater in Atlantic Canada than in the Northeastern United States. Moreover, although this is due in part to the greater absolute number of firms and employment in Canadian fisheries--the level of such assistance is greater in Atlantic Canada as well. No effort is made here to estimate the effects such assistance programs in the Northeastern United States or Atlantic Canada have on harvesting and processing operations; however, it is apparent from evidence submitted by industry witnesses and information obtained by Commission staff that government assistance to the fishing industry is much more pervasive in Atlantic Canada than in the Northeastern United States.

#### The U.S.-Canadian Maritime Boundary Dispute

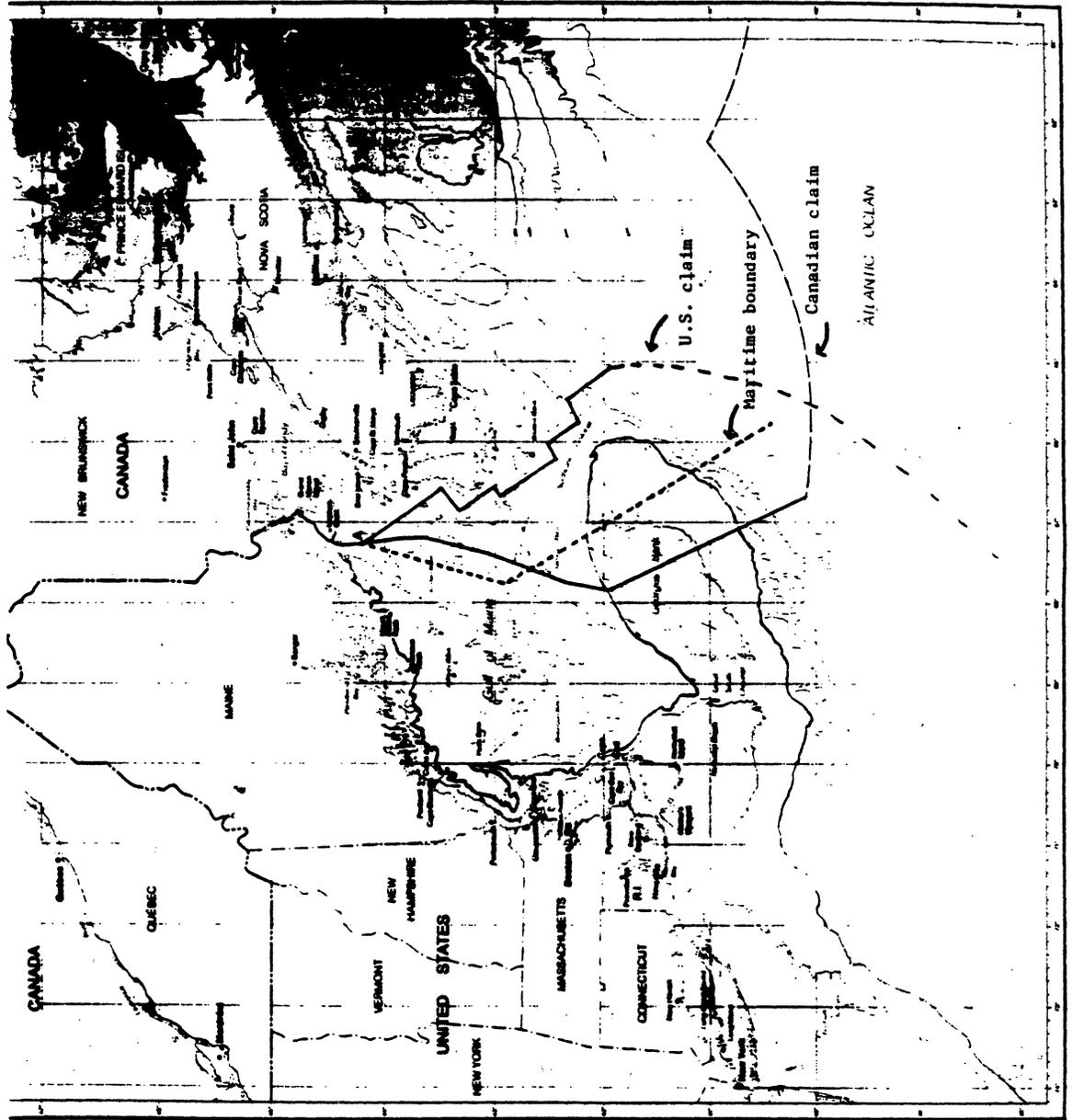
One of the most important issues concerning fisheries trade between the Northeastern United States and Atlantic Canada has been the dispute over the Atlantic coast maritime boundary between the United States and Canada. This dispute, with origins as far back as the early 1960's, came to a head in recent years with the extension of U.S. and Canadian maritime boundaries to 200 nautical miles in 1977. Because of differing interpretations of the geography of the Atlantic coastline of North America, the boundaries claimed by the United States and Canada overlapped (fig. 15). The area in dispute, comprised primarily of a portion of the Continental Shelf known as Georges Bank, contains some of the world's most productive and valuable fish resources--mostly groundfish and scallops.

#### Background

The dispute can be traced back to the 1960's, when, in 1964, both nations' governments issued leases for offshore oil and gas development activities in the Gulf of Maine area. Canada, in issuing permits for such activities, treated an equidistant line between the two nations' coasts as the boundary of Canadian jurisdiction, an area which included part of Georges Bank. The United States, on the other hand, considered the continental shelf extending to the 100-fathoms depth as the limit to U.S. jurisdiction, thus asserting control over all of Georges Bank.

However, it was not until 1969 that the United States formally protested Canadian authorization of natural resource development on the Georges Bank continental shelf. Theretofore, Canada later claimed, a de facto equidistant line was used by the United States in authorizing leases.

Figure 15.--U.S. maritime boundary claim, Canadian boundary claim, and maritime boundary determined by the International Court of Justice



The emergence of fisheries resources in the dispute came about in 1974, when the United States, in accordance with Article 2, paragraph 4 of the 1958 Geneva Convention on the Continental Shelf <sup>1/</sup>, banned foreign harvesting of American lobster on the U.S. continental shelf. In deference to Canada the United States later excluded Canadian fishermen from this ban. Under the auspices of the Third United Nations Conference on the Law of the Sea, both nations in 1977 extended their fisheries conservation zones to 200 nautical miles; this further exacerbated the jurisdictional dispute, since now the issue concerned not just the continental shelf (i.e. hydrocarbon resources) but also the living marine resources in the oceans.

Further negotiations resulted in the February 1977 signing of an Interim Reciprocal Fisheries Agreement between the two nations. This provided for reciprocal access to the disputed portions of each nation's fisheries conservation zone through December 1977. Negotiations to renew the agreement broke down in June 1978.

Agreement between representatives of the United States and Canada was reached in March 1979 to seek government approval of two treaties: the "Treaty to Submit to Binding Dispute Settlement the Delimitation of the Maritime Boundary in the Gulf of Maine Area" and the "Agreement on East Coast Fisheries Resources." The Treaty and the Agreement were interdependent and written to come into force simultaneously. However, the Northeastern U.S. fishing industry vigorously opposed the Agreement on the grounds it provided excessive Canadian access to fisheries resources under U.S. jurisdiction. After intensive lobbying by U.S. industry representatives, the U.S. Senate failed to ratify the Agreement, despite the signing of both treaties by top officials of the U.S. Department of State and the Canadian Ministry of External Affairs. The boundary settlement treaty, however, was ratified and both nations agreed to refrain from enforcement activities in the disputed zone until the maritime boundary was established by a five-judge Chamber of the International Court of Justice in The Hague, the Netherlands. Both nations agreed to accept the court's decision as binding and final.

#### The arguments of the United States and Canada

There were numerous complicating issues involved in the dispute and the U.S. claim. The United States has more than 30 maritime boundaries worldwide, and in the extension of only three was more than a 50-50 share of a disputed area (where a 200-mile limit overlapped with another nation's claimed jurisdiction) claimed by the United States; the Atlantic boundary with Canada was one of these. Thus, the United States had to overcome the "equidistance" argument typically presented in such disputes (and the argument presented by Canada in her claim for 50 percent of the maritime region between the two countries).

The U.S. position was supported by a number of arguments, all leading to an overall principle of equity as a basis for the delimitation of the boundary line. The Chamber was asked to delimit the boundary line in such a way as to create the most equitable solution for both parties, taking into account such relevant circumstances as: the configuration of the North American coastline;

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<sup>1/</sup> 15 U.S.T. 471; TIAS 5578; (2).

the natural boundaries of the Gulf of Maine Basin, Georges Bank, and the Scotian Shelf, and the fisheries resources associated with each; and the domination of the Georges Bank fisheries by U.S. harvesters, both in terms of the length of time they have been fishing the grounds and, with some exceptions, in absolute terms of the size of the catch. In assessing the equity of the adjudged boundary, the Chamber was asked to consider certain principles, namely that the delimitation:

- o respect the relationship between the two nations' coastlines and the maritime areas positioned in front of those coastlines;

- o facilitate the conservation and management of the area's natural resources; and,

- o minimize the potential for dispute between the two nations.

On the basis of the above arguments, the United States requested the Chamber delimit the line labeled "U. S. claim" in figure 13 as the boundary.

The Canadian position was relatively straight-forward, centering on the "equidistance rule": the maritime boundary should simply be delimited so as to divide the maritime area exactly evenly between the two nations' coastlines. The support behind this position lay in Article 6, paragraphs 1 and 2 of the 1958 Geneva Convention on the Continental Shelf, to which both nations are party. This section of the Convention provides that, in the case of a continental shelf positioned between the coasts of two opposite nations or of two adjacent nations (both factors involved in the present case), "in the absence of agreement, and unless another boundary line is justified by special circumstances, the boundary shall be determined by application of the principle of equidistance (between the respective nations' coastlines)." <sup>1/</sup> Canada argued that not only were there no "special circumstances" to create the need for a line drawn by other than the equidistance rule, contrary to the U.S. argument, but that the United States, in taking certain actions with respect to oil leases and not taking action until 1969 against Canadian oil lease activity in earlier years, thereby acquiesced to the Canadian position with respect to an equidistant line delimiting a single maritime boundary across the Gulf of Maine region. Canada requested the Chamber adjudge the line labeled "Canadian claim" in figure 13 the maritime boundary.

#### The Court's decision and its potential impact

On October 12, 1984 the Court handed down its judgement on the maritime boundary. The five-judge Chamber of the Court rejected virtually every argument proffered by either side as irrelevant to the applicable law surrounding the case. In particular, Article 6 of the Convention on the Continental Shelf--which both sides had interpreted as lending support to their respective positions--was not accepted by the Chamber as a binding rule of law, as the boundary in this case delimits not only the continental shelf

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<sup>1/</sup> 15 U.S.T. 471; TIAS 5578 (6) (2).

but the fishing and other rights in the waters above the shelf as well. 1/ The Chamber rejected as without basis as a rule of international law the Canadian claim that the boundary should ensure preservation of existing fishing patterns vital to coastal communities 2/; likewise, the U.S. argument that the proper boundary should make it possible to ensure the optimum conservation and management of living resources and at the same time reduce the potential for future disputes between the two parties. 3/ That the United States stalled long enough in reacting to Canadian offshore oil lease activity to constitute acquiescence or an estoppel the Court did not accept, finding certain activities of the U.S. Government prior to 1969 sufficient to constitute U.S. rejection of the Canadian claim of an equidistant boundary line. In sum, the Chamber--noting that the area above the continental shelf, "far from being a genuine (water) column of definite shape, is in reality a volume of liquid in movement, forming the habitat of mobile fauna" 4/, and that it was required to delimit a single boundary across not only the continental shelf itself but this constantly fluctuating water column--turned to the application of geographic criteria as its "basic choice," subject to adjustments for equity made necessary by the special effects created by, for example, the Bay of Fundy and certain "important" islands lying off the coastlines of Nova Scotia and New England. 5/

The line drawn by the Chamber (figure 13) essentially split the two competing claims. The line, 38 miles to the west of the eastern end of Georges Bank and 38 miles to the east of the Canadian claim, awards the United States 61 percent of the disputed area of Georges Bank. 6/ The area to the north of 44 11'12"N, 67 16'46"W remains in dispute, as it was not considered by the Chamber under the terms of the U.S.-Canadian treaty which sent the dispute to the Court.

The following tabulation presents estimates of the annual average catches of the subject groundfish and scallops by U.S. and Canadian vessels fishing in the disputed zone during the period 1978-1981 (in millions of pounds, calculated from published and unpublished data of U.S. and Canadian governments):

<u>Species</u>	<u>United States</u>	<u>Canada</u>
Groundfish-----	42.03	59.86
Scallops-----	5.30	17.37

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1/ International Court of Justice, Case Concerning Delimitation of the Maritime Boundary in the Gulf of Maine Area (Canada/United States of America): Judgement, Oct. 12, 1984, paras. 118-119.

2/ Ibid., para. 110.

3/ Ibid.

4/ Ibid., para. 203.

5/ Ibid., paras. 195, et seq.

6/ David A. Colson, Esq., Office of the Legal Advisor, U.S. Dept. of State, staff communication, 10-19-84.

On the basis of the above estimates, U.S. vessels accounted for 41 percent of the total U.S.-Canadian catch of groundfish and 23 percent of the scallops in the disputed area of Georges Bank.

The following tabulation represents a simplified estimate of the potential impact on each nation's industry as a result of the Court's decision. The data represent projected annual catches by U.S. and Canadian vessels fishing their respective parts of the formerly disputed zone (in millions of pounds): 1/

<u>Species</u>	<u>United States</u>	<u>Canada</u>
Groundfish-----	33.62	68.26
Scallops-----	7.48	15.19

On the basis of these estimates, which allocate U.S. vessels one-third of the disputed zone's total catch and Canadian vessels two-thirds, U.S. fishing vessels would harvest 33.62 million pounds of groundfish annually, a 20 percent decrease from the average annual catch of 42.03 million pounds during 1978-1981. Canadian vessels would harvest 68.26 million pounds of groundfish, a 14 percent increase from the previous estimated average annual catch of 59.86 million pounds.

U.S. scallopers, on the other hand, would stand to gain in annual harvests, increasing their annual catch from 5.3 million pounds to 7.48 million pounds, a 41 percent increase. Canadian vessels would suffer a decrease in annual scallop catch, from 17.37 million pounds to 15.19 million pounds, a decrease of 14 percent.

It is not at all reasonable to assume, however, that the condition of the stocks, and therefore the expected catch of each species, will be unchanged from 1978-1981. In the case of scallops and several important groundfish species, research information indicates continued degeneration in the condition of the stocks, which may act to curtail annual harvests of these species, as discussed below.

Scallops.--According to information from both U.S. and Canadian government sources, the scallop fishery on Georges Bank is in extremely poor shape, the Canadian Government going so far as to pronounce the resource "at its lowest level since reliable data have been compiled." 2/ The last peak in

---

1/ Assuming: total effort is unchanged in the area comprising the disputed zone (i.e. the same number of vessels fish the area, only from now on exclusively within their country's respective jurisdiction); the biomass, or total stock level, of the subject species remains unchanged from that averaging over the period 1978-1981; and as representatives of both nations' fishing industries have declared, Canada has obtained jurisdiction over the bulk of the disputed zone's fish resources (we have, therefore, assumed here two-thirds of both the groundfish and scallop stocks).

2/ Canadian Atlantic Fisheries Scientific Advisory Committee, "Advice on the Management of Scallop Resources", CAFSAC Advisory Document 84/11, p.2.

availability occurred in 1977-78, and with no strong year-classes since 1972, the scallop population has steadily declined in condition. There are hopes of a temporary recovery in 1986 with the recruitment of an apparently strong 1982 year-class (the number of scallops born in 1982) into harvestable scallops, but the fishery cannot long rely on a population of scallops all born in the same year. There is evidence of a long cycle of as much as 15 years from peak to peak in scallop availability, a biological phenomenon affected by fishing only insofar as it increases the amplitude of the cycle. Hence, it could be many years before the scallop population of Georges Bank is able to support a combined U.S.-Canadian harvesting effort of anything like it has seen in recent years.

Haddock.--Few groundfish stocks on Georges Bank have shown the long run decline in abundance exhibited by the haddock population. The effects of a heavy fishing effort by distant-water fleets in the 1960's were to cause abundance to fall from an annual average of at least 150,000 metric tons prior to 1960 to an average 25,000 tons during 1970-75. A good 1975 year-class sustained rising catches through the early 1980's, but subsequent year-classes were very small and the population appears to be in decline again. Recent catches by Northeastern U.S. vessels have averaged well below the estimated maximum sustainable yield, indicating it will take a long time for the population of haddock, a slow-growing species anyway, to recover to historical levels.

The principal spawning area for haddock is that portion of Georges Bank now under Canadian jurisdiction. Much of the future prospect for haddock catches by either U.S. or Canadian fishermen depends crucially on the effectiveness of Canadian Government management of that fishery. For several years prior to the boundary settlement, the U.S. National Marine Fisheries Service had in place a management plan which closed off the spawning grounds from March through May of each year. A NMFS proposal, to take effect in 1985, would have extended that closure to February-May.

Yellowtail flounder.--The most valuable of the several species of flounder of commercial importance in the Northeastern United States, yellowtail flounder, has an uncertain future on Georges Bank. Combined U.S.-Canadian catches peaked in 1970 at just over 24,000 metric tons (virtually all by U.S. vessels), subsequently declining to 7,700 tons in 1978, as a result largely of foreign overfishing. The U.S. catch since 1981, however, has reportedly risen quite dramatically, although specific data on catches from Georges Bank are not available.

There are extensive fisheries for yellowtail in the western Gulf of Maine, southern New England, and the Mid-Atlantic, which serve as alternatives to the Northeast Peak of Georges Bank. These fisheries show mixed promise, according to NMFS assessments: catches in the Gulf of Maine have been relatively constant since 1980; those in the Mid-Atlantic have continued a decade-long decline, but may still benefit somewhat from an apparently strong 1980 year-class, which grew to harvestable size in 1982 and 1983. However, as in the cases of haddock and scallops, reliance on young fish to both sustain the fishing vessels and spawn for future harvests is not sound policy; effective management of the yellowtail stocks by the U.S. Government, in whose jurisdiction the spawning grounds and most of the stocks lie, will be needed to protect the future of this fishery.

Witch flounder.--Witch flounder, or "gray sole" as it is inaccurately labeled by many in the United States, is another commercially valuable flounder species in the Northeastern United States. This species, which in New England waters is not sufficiently abundant to support a directed fishery and so is harvested as a "by-catch" with other groundfish, is of concern for two reasons: (1) witch flounder reaches harvestable size at the same age it becomes sexually mature, and so it is particularly susceptible to early harvest before it can spawn; and (2) increasing catches of this fish by U.S. vessels may be too high to sustain indefinitely in light of recent NMFS research indicating a declining witch flounder population.

Redfish.--Although redfish (or ocean perch) is not a groundfish species directly considered in this investigation, it is of concern due to its role as a likely desired substitute by U.S. fishermen as their effort shifts out of the Canadian portion of Georges Bank. Redfish stocks are found on Georges Bank and throughout the deeper waters of the Gulf of Maine; redfish catches accounted for 5 percent (by value) of all groundfish catches by Northeastern U.S. fishing vessels during 1979-1981.

The redfish population off New England is in extremely poor condition. Preliminary NMFS data indicate a 1983 catch of 5,200 metric tons, the lowest catch in the 50-year history of the redfish fishery. Redfish is a slow-growing fish: it reaches sexual maturity at 8-9 years of age, approximately the age at which it is of harvestable size. This slow rate of growth has implications for the current and future state of the fishery, since it will take very long for the population to recover and catch rates to increase, particularly if added pressure results from increased effort by dislocated U.S. fishing vessels. Indeed, according to one assessment, "the situation (in the Gulf of Maine) has become so bad that (redfish) stock biomass and catches will continue to decline regardless of fishing pressure." 1/

Clearly, for some very important fisheries in the Northeastern United States, the implications of shifting effort by U.S. fishing vessels out of the Northeast Peak of Georges Bank are potentially grave. To the extent that stocks decline with the increased fishing pressure after vessel relocation--an extent that is too early to measure--the net gains in annual catches of scallops accruing to U.S. vessels estimated earlier will be lower, and the net losses in catches of groundfish will be greater.

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1/ Northeast Fisheries Center, NMFS, "An Intimate Study of the Behavioral Patterns in Fish," Commercial Fisheries News, November 1984, p. 21.



**APPENDIX A**

**REQUEST FROM THE UNITED STATES TRADE REPRESENTATIVE**

THE UNITED STATES TRADE REPRESENTATIVE  
WASHINGTON

014832

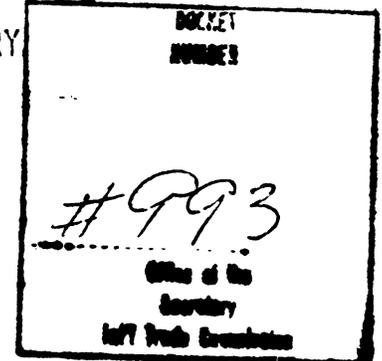
20506

1983 NOV 14 AM 11:58:22

OFFICE OF THE SECRETARY  
November 4, 1983  
DOCKET # 993

The Honorable Alfred Eckes  
Chairman, U.S. International  
Trade Commission  
701 E Street, N.W.  
Washington, D.C. 20436

DOCKET



Dear Chairman Eckes:

Members of the fishing industry in the Northeastern United States have brought to my attention a number of problems they are experiencing which they attribute to competitive factors affecting their industry, including the importation of certain fish and fish products from Canada. In order to assess the true nature and extent of these problems, more information is required concerning the economic and competitive conditions which the industry faces. To provide this information, I request, at the direction of the President and pursuant to Section 332(g) of the Tariff Act of 1930, that the Commission conduct an investigation and report to me all significant competitive and economic factors which are affecting the performance of the fishing industry of the Northeastern United States.

The Commission's investigation should examine conditions in the fishing and seafood industries of the Northeastern United States and Eastern Canada over the last five years. It should concentrate on the effects of imports of fish and fish products from Canada on the U.S. fishing and seafood industries and markets of the New England and Middle Atlantic States. The Commission assessment also should include a review of the effect of imports from other major sources, such as Iceland, Norway, and Denmark.

The species to be investigated should include cod, haddock, pollock, flatfish (including flounder and sole), and scallops in the common product forms of whole fish (frozen and fresh), fish fillets (frozen and fresh), and fresh and frozen scallops. Many of these species and product forms are identified with individual domestic markets which possess distinct characteristics. The Commission should define the individual product markets as clearly as possible and

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conduct the analysis of the impact of Canadian fishery imports on a market-by-market basis by distinguishing between effects on the different U.S. industry sectors, including harvesters, processors, and importers.

In examining the competitive factors in the Canadian and U.S. industries, the Commission should, to the extent the information can be obtained:

A. Identify federal and provincial government assistance programs which are available to the Canadian industry's harvesting and processing sectors and determine if any Canadian assistance program discontinued as a result of any trade-relief petitions filed by the U.S. industry, has been or is expected to be reinstated. Such government assistance programs may include assistance which reduces fixed costs (such as direct grants, loan guarantees, forgivable loans, discounted interest rates and insurance rates, or start-up assistance), assistance which reduces variable costs (such as vessel fuel and ground transportation costs), and assistance which enhances revenues (such as retroactive bonuses or other payments to processors, price support payments to harvesters or processors based on units sold, tax credits or exemptions, marketing assistance or advertising assistance).

B. Describe the current, past, and future availability of fisheries resources to each nation and the current and historical production levels of both the harvesting and processing sectors of each nation's industry.

C. Compare the degree of horizontal and vertical integration in each nation's industry.

D. Compare employment levels and costs and government employment policies (including income maintenance, severance pay, and unemployment compensation) in both the harvesting and processing sectors of each nation's industry.

E. Describe the major issues and problems in the management of fisheries resources facing each country and the differences in the management policies and programs (such as quotas or limited entry regulations) which may affect economic conditions in each nation's fishing industry.

F. Compare the ex-vessel, wholesale, and retail prices of similar products in the Northeastern U.S. and Canadian industries, with an assessment of the role that product quality has on prices in both nation's industries.

G. Describe the financial structure of the harvesting and processing sectors of each nation's industry, detailing the mix of debt, private equity, public equity, and types of government assistance in each sector. For the harvesting sectors, the distribution of firms by vessel size and gear type should be determined. For firms in the processing sector, the capacity and seasonal nature of operations should be determined. Also, compare the current and past production costs in both the harvesting and processing sectors of each industry.

H. Describe the effect that the importation of other product forms, including but not limited to frozen fish blocks, have on the U.S. domestic market for fresh whole and filleted fish and for frozen fish fillets.

In examining the volume of fisheries trade between the two nations, the Commission should:

A. Describe the volume of trade in fish and fish products with particular emphasis on Canadian exports to the New England and Middle Atlantic States, including a description of the variations in the levels of those exports on a yearly and monthly basis. To the extent possible, the Commission should determine the reason for the variations and describe the effects that these variations have on the domestic industry and markets.

B. Describe the effects of exchange rates on the flow of fisheries between the two nations.

C. Describe the effect of tariff and non-tariff trade barriers on trade in fish and fish products between the two nations, and also of trade barriers in other potential markets, such as the European Economic Community, which may affect Canada's export marketing strategies.

During the course of the investigation, it is suggested that the Commission hold a hearing in the Northeastern United States at a place and time convenient for industry representatives and other interested individuals to present their views. To facilitate the conduct of the Commission's investigation, five individuals representing the domestic fishing industry in Maine, New Hampshire, Massachusetts, Rhode Island, and Connecticut have been selected by the industry to serve as an Industry Contact Panel.

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The Commission should report the results of the investigation to the President in December 1984.

Thank you for your cooperation in and attention to this important matter.

Very truly yours,

A handwritten signature in cursive script, appearing to read "William E. Brock".

WILLIAM E. BROCK

WEB:rjb



**APPENDIX B**

**NOTICE OF INSTITUTION OF INVESTIGATION NO. 332-173  
AND PRELIMINARY NOTICE OF HEARING**

were permitted to appear in person or by counsel.

The Commission transmitted its report on this investigation to the Secretary of Commerce on December 15, 1983. A public version of the Commission's report, **Certain Hot-Rolled Carbon Steel Plate from the Republic of Korea** (investigation No. 731-TA-151 (Preliminary), USITC Publication 1459, December 1983) contains the views of the Commission and information developed during the investigation.

Issued: December 15, 1983.

By order of the Commission.

Kenneth R. Mason,  
Secretary.

[FR Doc. 83-33627 Filed 12-20-83; 8:45 am]  
BILLING CODE 7020-02-48

(Investigation No. 337-TA-152)

**Import Investigations; Certain Plastic Food Storage Containers; Clarification of Notice Joining Respondent and Terminating Other Respondents**

**AGENCY:** U.S. International Trade Commission.

**ACTION:** Clarification of notice of Commission determination not to review an initial determination.

**SUPPLEMENTARY INFORMATION:** On Nov. 30, 1983, the Commission published a notice in the *Federal Register* (48 FR 54140) that it had determined not to review an initial determination (Order No. 18) joining new respondents and terminating respondents in the above-captioned investigation. That notice may be read as indicating that three individuals were terminated as respondents in their personal capacities. This is not the case. The notice should have indicated the termination of the following respondent, as named in the Commission's notice of investigation (48 FR 32095, July 13, 1983): David Y. Lei, Morris A. Lauterman, Peter Marcar, 888 Brannon St., Suite 275, San Francisco, CA 94103.

**FOR FURTHER INFORMATION CONTACT:** Jack Simmons, Esq., Office of the General Counsel, telephone 202-523-0493.

Issued December 12, 1983.

By order of the Commission.

Kenneth R. Mason,  
Secretary.

[FR Doc. 83-33627 Filed 12-20-83; 8:45 am]  
BILLING CODE 7020-02-48

(Investigation No. 337-TA-133)

**Import Investigations; Certain Vertical Milling Machines and Parts, Attachments, and Accessories Thereto; Extension of Administrative Deadline; Rescheduling of Hearing and Deadlines for Written Submissions**

**AGENCY:** International Trade Commission.

**ACTION:** Notice is hereby given that the Commission has decided to extend the administrative deadline in the above-captioned investigation to March 23, 1984. The Commission has also decided to reschedule the date of the previously announced Commission hearing and the deadlines for filing written submissions.

**Authority:** The authority for the Commission's disposition of this matter is contained in section 337 of the Tariff Act of 1930 (19 U.S.C. 1337) and in § 210.15 of the Commission's Rules of Practice and Procedure (19 CFR 210.15)

**SUPPLEMENTARY INFORMATION:** On January 28, 1983, the Commission declared the above-captioned investigation more complicated and established an administrative deadline of February 17, 1984 for the completion of this investigation. 48 FR 4745. The Commission decided on November 30, 1983 to review the initial determination on violation filed in this investigation. 48 FR 54911. Subsequently, counsel for several Taiwanese respondents filed a motion for declaration of this case as more complicated and addition of time to the established deadlines. Complainant Textron and the Commission investigative attorney opposed the motion.

In light of the large number of issues specified for review and the relatively short period remaining before expiration of the Commission's administrative deadline, the Commission has decided to extend its administrative deadline to March 23, 1984. The revised schedule for completion of this investigation is as follows:

The Commission will hold a public hearing in this investigation on February 7, 1984, in the Commission Hearing Room, 701 E Street NW., Washington, D.C. 20436, beginning at 10:00 a.m. Written submissions on the issues selected for review must be filed not later than close of business on January 3, 1984, and written submissions on remedy, the public interest, and bonding must be filed not later than the close of business on January 9, 1984. Written requests to appear at the Commission hearing must be filed with the Office of the Secretary by January 31, 1984.

**FOR FURTHER INFORMATION CONTACT:** Catherine R. Field, Esq., Office of the General Counsel, U.S. International Trade Commission, telephone (202) 523-0350.

Issued: December 12, 1983.

By order of the Commission.

Kenneth R. Mason,  
Secretary.

[FR Doc. 83-33627 Filed 12-20-83; 8:45 am]  
BILLING CODE 7020-02-48

(332-173)

**Import Investigations; Conditions of Competition Affecting the Northeastern U.S. Groundfish and Scallop Industries in Selected Markets**

**AGENCY:** International Trade Commission.

**ACTION:** At the request of the United States Trade Representative (USTR), the Commission has instituted investigation No. 332-173 under section 332(g) of the Tariff Act of 1930 (19 U.S.C. 1332(g)), for the purpose of gathering and presenting information on the competitive and economic factors affecting the performance of the Northeastern United States groundfish and scallop industries in selected Northeastern U.S. markets and will analyze these industries' competitive position in these markets. Specifically, the Commission has been asked to develop the following information, with an emphasis on but not limited to the Canadian and U.S. industries: Government assistance to the fisheries industries; fisheries resources and their management; production levels in the harvesting and processing segments; volume of trade; industry integration; employment; product prices; financial structure of the harvesting and processing industries; the effect of exchange rates and tariff and nontariff barriers on the flow of trade between the two countries; the importation of other product types, like frozen fish blocks; and trade barriers of other potential Canadian export markets.

**EFFECTIVE DATE:** December 9, 1983.

**FOR FURTHER INFORMATION CONTACT:** Mr. Doug Newman or Mr. Tom Lopp, Agriculture, Fisheries, and Forest Products Division, U.S. International Trade Commission, Washington, D.C. 20436, telephone 202-724-0087 or 202-724-1759, respectively.

**Background**

The USTR requested on November 8, 1983, that the Commission investigate the competitive conditions affecting the performance of the fishing industry in

the Northeastern United States. The USTR specified that the investigation should cover fresh and frozen whole groundfish (cod, haddock, pollock, flounder, and sole), groundfish fillets, and scallops and that the study should concentrate on the industries and markets of the New England and Middle Atlantic States. To the extent possible, the study will provide information on the distinct markets for each of the groundfish species and the interaction between U.S. imports and the operations of U.S. harvesters, processors, and importers. The USTR also requested that emphasis be placed on an analysis of industry conditions in Canada and U.S. imports from that country.

#### Public Hearing

A public hearing in connection with the investigation will be held on September 5, 1984, in Boston, MA, and on September 7, 1984, in Portland, ME. At least 60 days prior to the hearing, a Federal Register notice will be posted giving the exact times and locations in Boston, MA and Portland, ME. All interested persons shall have the right to appear by counsel or in person, to present information and to be heard. Requests to appear at the public hearing should be filed with the Secretary, U.S. International Trade Commission, 701 E Street NW., Washington, D.C. 20436, not later than noon, August 29, 1984.

#### Written Submissions

In lieu of or in addition to appearances at the public hearing interested persons are invited to submit written statements concerning the investigation. Commercial or financial information which a submitter desires the Commission to treat as confidential must be submitted on separate sheets of paper, each clearly marked "Confidential Business Information" at the top. All submissions requesting confidential treatment must conform with the requirements of § 201.6 of the Commission's rules of practice and procedure (19 CFR 201.6). All written submissions, except for confidential business information, will be made available for inspection by interested persons. To be ensured of consideration by the Commission, written statements should be submitted at the earliest practicable date, but not later than August 22, 1984. All submissions should be addressed to the Secretary at the Commission's office in Washington, D.C.

Issued December 13, 1983.

By order of the Commission,  
Kenneth R. Mason,  
Secretary.  
[FR Doc. 83-33327 Filed 12-20-83; 8:45 am];  
BILLING CODE 7020-02-07

#### INTERSTATE COMMERCE COMMISSION

[Finance Docket No. 30339]

#### The Baltimore and Ohio Railroad Co., Exemption

AGENCY: Interstate Commerce Commission.

ACTION: Notice of Exemption.

**SUMMARY:** The Interstate Commerce Commission exempts from the requirements of prior approval under 49 U.S.C. 10901 the acquisition and operation by the Baltimore and Ohio Railroad Company of a 7.86-mile line of railroad between Pleasant City and Cambridge, OH, in Guernsey County, OH.

**DATES:** This exemption will be effective on December 20, 1983. Petitions to reopen must be filed by January 9, 1984.

**ADDRESSES:** Send pleadings referring to Finance Docket No. 30339 to:

- (1) Office of the Secretary, Case Control Branch, Interstate Commerce Commission, Washington, D.C. 20423
- (2) Petitioner's representative: Peter J. Shultz, P.O. Box 6419, Cleveland, OH 44102.

**FOR FURTHER INFORMATION CONTACT:** Louis E. Gitomer, (202) 275-7245.

#### SUPPLEMENTARY INFORMATION:

Additional information is contained in the Commission's decision. To purchase a copy of the full decision, write to T.S. InfoSystems, Inc., Room 2227, Interstate Commerce Commission, Washington, D.C. 20423, or call 289-4357 (DC Metropolitan area) or toll free (800) 426-5403.

Decided: December 14, 1983.

By the Commission, Chairman Taylor, Vice Chairman Sterrett, Commissioners Andre and Gradison.

James H. Bayne,  
Acting Secretary.

[FR Doc. 83-33776 Filed 12-20-83; 8:45 am];  
BILLING CODE 7020-01-02

[Finance Docket No. 30316]

#### The New York, Susquehanna and Western Railway Corp., Abandonment, Exemption in Bergen County, NJ

AGENCY: Interstate Commerce Commission.

ACTION: Notice of Exemption.

**SUMMARY:** The Interstate Commerce

Commission exempts The New York, Susquehanna and Western Railway Corporation from the requirements of 49 U.S.C. 10903 et seq. in connection with the abandonment of 1.462 feet of rail line in Bergen County, NJ, subject to employee protective conditions.

**DATES:** This exemption will be effective on December 22, 1983. Petitions to reopen must be filed by January 12, 1984.

**ADDRESSES:** Send pleadings referring to Finance Docket No. 30316 to:

- (1) Office of the Secretary, Case Control Branch, Interstate Commerce Commission, Washington, DC 20423.
- (2) Petitioner's representative: William P. Quinn, 1800 Penn Mutual Tower, 510 Walnut Street, Philadelphia, PA 19108.

#### SUPPLEMENTARY INFORMATION:

Additional information is contained in the Commission's decision. To purchase a copy of the full decision, write to T.S. InfoSystems, Inc., Room 2227, Interstate Commerce Commission, Washington, DC 20423, or call 289-4357 (DC Metropolitan area) or toll free (800) 426-5403.

Decided: December 14, 1983.

By the Commission, Chairman Taylor, Vice Chairman Sterrett, Commissioners Andre and Gradison.

James H. Bayne,  
Acting Secretary.

[FR Doc. 83-33776 Filed 12-20-83; 8:45 am];  
BILLING CODE 7020-01-02

[Finance Docket No. 30186]

#### Tongue River Railroad Co.; Construction and Operation in Custer, Powder River, and Rosebud Counties, MT

December 14, 1983.

#### Notice to the Parties

On June 2, 1983, Tongue River Railroad Company, a limited partnership consisting of Transportation Properties, D.S. Cartage Corporation, Otter-Creek Transportation Company, and Tongue River Holdings, Inc., filed an application seeking authority to construct and to operate an 89-mile rail line between Miles City, MT and two terminal points, one in Rosebud County and one in Powder River County, MT. The Commission's Draft Environmental Impact Statement in the proceeding was served July 15, 1983.

Numerous people have expressed an interest in this proceeding. The Commission intends to continue to serve its decisions and notices on all of these people. However, in an effort to reduce the costs to the parties involved in the service of pleadings, a service list of



**APPENDIX C.**

**WITNESSES AT THE HEARINGS**

## TENTATIVE CALENDAR OF PUBLIC HEARING

Those listed below appeared as witnesses at the United States International Trade Commission's hearing:

Subject : Conditions of Competition Affecting  
the Northeastern U.S. Groundfish  
and Scallop Industries in Selected  
Markets

Inv. No. : 332-173

Date and time: September 5, 1984 - 10:00 a.m.

Sessions were held in connection with the investigation at the John F. Kennedy Federal Building, Government Center, Room 2003-A, in Boston, Massachusetts

Congressional and State appearances:

Honorable Nicholas Mavroules, United States Representative,  
State of Massachusetts

Honorable James M. Shannon, United States Representative,  
State of Massachusetts

Thomas Hubbard, Assistant to Massachusetts Governor Michael  
Dukakis and on behalf of: the Massachusetts Environmental  
Affairs Secretary James Hoyt.

Honorable Patricia G. Fiero, State Representative, State of  
Massachusetts, House of Representatives

WITNESS AND ORGANIZATION

Domestic:

PANEL ON BEHALF OF THE MASSACHUSETTS TRADE TASK FORCE

Salvatore Parisi, Massachusetts Industry Contact Panel  
to the ITC

James D. O'Malley, Massachusetts Fisheries Trade Task Force

Jacob Dykstra, F/V JANILEEN II, Point Judith, Rhode Island

- more -

PANEL ON BEHALF OF VESSEL OWNERS AND FISHERMEN

William Lundrigan, Business Agent (Teamsters Union) which represents the fishermen from the Port of New Bedford

Fred Bennett, F/V SEA BAG, Chatham, Massachusetts - owner and captain

Mark Farnham, F/V HONI DO II, Chatham, Massachusetts - owner and captain

James Bramante, Vessel owner, Boston, Massachusetts

James Costakes, General Manager, Seafood Producers Association, New Bedford, Massachusetts

Mark Godfried, F/V STELLA G, Gloucester, Massachusetts

Ms. Angela Sanfillippo, Gloucester Fishermen's Wives, Gloucester, Massachusetts

Francis Mirarchi, F/V CHRISTOPHER ANDREW, Scituate, Massachusetts

Ms. Kathy Cole, F.V JANILEEN II, Point Judith, Rhode Island

Daniel A. Arnold, Executive Director, Massachusetts Inshore Draggermen's Association

PANEL ON BEHALF OF MASSACHUSETTS AND RHODE ISLAND FISH PROCESSORS

Francis M. Byrnes, F. M. Byrnes Company, Boston, Massachusetts

Frank Cefalo, North Atlantic Fisheries Company, Gloucester, Massachusetts

Robert Gill, Boston Fisheries Association, Boston, Massachusetts

Edward McCollum, Ocean Crest Seafoods, Manchester, Massachusetts

PANEL ON BEHALF OF WHOLESALE FRESH FISH DEALERS

James M. O'Connell, Old Harbor Fish Company, Inc., Chatham, Massachusetts

Jay Lanzillo, Northern Shores Fish Company, New York, N.Y.

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Ms. Ingrid S. Bartinique, Consultant to the New England  
Governor's Conference, Inc.

IMPORTERS:

O'Melvany and Myers--Counsel  
Washington, D.C.  
on behalf of

Fisheries Council of Canada, Ottawa, Ontario

Ron W. Bulmer, President

David Bollivar, National Sea Products

W. Murphy, Mersey Seafoods, Ltd.

Fred Woodman, Woodman Fisheries, Ltd. and Fisheries  
Association of Newfoundland and Labrador

Stan Purdey, Eastern Fishermen Federation

Gary Horlick--OF COUNSEL

TENTATIVE CALENDAR OF PUBLIC HEARING

Those listed below appeared as witnesses at the United States International Trade Commission's hearing:

Subject : Conditions of Competition Affecting  
the Northeastern U.S. Groundfish  
and Scallop Industries in Selected  
Markets

Inv. No. : 332-173

Date and time: September 7, 1984 - 10:00 a.m.

Sessions were held in connection with the investigation in the Holiday Inn, 88 Spring Street, Portland, Maine

Congressional and State appearances:

Honorable William S. Cohen, United States Senator, State of Maine

Honorable George J. Mitchell, United States Senator, State of Maine

Honorable Olympia J. Snowe, United States Representative, State  
of Maine

Honorable John R. McKernan, Jr., United States Representative,  
State of Maine

Honorable Spencer Appollonio, Commissioner of the Maine Department  
of Marine Resources

Charles S. Colgan, Senior Economist, State of Maine, Executive  
Department, State Planning Office

WITNESS AND ORGANIZATION

Domestic:

PANEL - INTRODUCTION TO MAINE FISHING INDUSTRY

Cyrus Lauriat, Fisherman, Booth Bay Harbor

Steven Keith, owner of processing company

- 2 -

**PANEL - CANADIAN IMPORTS OF WHOLE FRESH FISH**

James Wilson, Professor of Economics, University of Maine

James Odlin, Fisherman

James Salisbury, Fisherman and owner of fish wholesale  
business**PANEL - CANADIAN IMPORTS OF FILLETS**

Frank O'Hara, owner of processing company

Spencer Fuller, Manager of Vinal Haven Fisheries Coop.

Preti, Flaherty & Beliveau--Counsel  
Portland, Maine  
on behalf of

Fishing vessels and their owners

Martin R. Johnson--OF COUNSEL

**IMPORTERS:**

Fisheries Council of Canada, Ottawa, Ontario

Robin Neill, Professor, Carlton University

Ms. Leigh Mazany, Professor, Dalhousie University

**APPENDIX D.**  
**SUPPLEMENTARY NOTICE OF HEARING**

Wilson Walton International, 66 Hudson Street, Hoboken, New Jersey 07030  
Farwest Corrosion Control Co., 17311 South Main Street, Gardena, California 90248

Met-Pro, Inc., 101 East Hampton, Crowley, Texas 76036

(c) Jeffrey L. Gertler, Esq., Unfair Import Investigations Division, U.S. International Trade Commission, 701 E Street NW., Room 125, Washington, D.C. 20436, shall be the Commission investigative attorney, a party to this investigation; and

(3) For the investigation so instituted, Donald K. Duvall, Chief Administrative Law Judge, U.S. International Trade Commission, shall designate the presiding officer.

Responses must be submitted by the named respondents in accordance with § 210.21 of the Commission's Rules of Practice and Procedure (19 CFR 210.21). Pursuant to §§ 201.16(d) and 210.21(a) of the rules, such responses will be considered by the Commission if received not later than 20 days after the date of service of the complaint. Extensions of time for submitting a response will not be granted unless good cause therefor is shown.

Failure of a respondent to file a timely response to each allegation in the complaint and in this notice may be deemed to constitute a waiver of the right to appear and contest the allegations of the complaint and this notice, and to authorize the presiding officer and the Commission, without further notice to the respondent, to find the facts to be as alleged in the complaint and this notice and to enter both an initial determination and a final determination containing such findings.

The complaint, except for any confidential information contained therein, is available for inspection during official business hours (8:45 a.m. to 5:15 p.m.) in the Office of the Secretary, U.S. International Trade Commission, 701 E Street NW., Room 156, Washington, D.C. 20436, telephone 202-523-0471.

**FOR FURTHER INFORMATION CONTACT:** Jeffrey L. Gertler, Esq., Unfair Import Investigations Division, U.S. International Trade Commission, telephone 202-523-0115.

Issued: July 16, 1984.

By order of the Commission.

Kenneth R. Mason,  
Secretary.

[FR Doc. 84-18913 Filed 7-24-84; 8:46 am]

BILLING CODE 7020-02-M

[Investigation No. 337-TA-199]

**Certain Anodes for Cathodic Protection and Components Thereof; Order**

Pursuant to my authority as Chief Administrative Law Judge of this Commission, I hereby designate Administrative Law Judge Janet D. Saxon as Presiding Officer in this investigation.

The Secretary shall serve a copy of this order upon all parties of record and shall publish it in the Federal Register.

Issued: July 19, 1984.

Donald K. Duvall,

Chief Administrative Law Judge.

[FR Doc. 84-18922 Filed 7-24-84; 8:46 am]

BILLING CODE 7020-02-M

[Investigation No. 337-TA-182/188]

**Certain Fluidized Supporting Apparatus and Components Thereof; Commission Review of Initial Determination**

**AGENCY:** U.S. International Trade Commission.

**ACTION:** Notice is hereby given that the Commission has determined to review the presiding officer's initial determination (ID) that there is no reason to believe that a violation of section 337 exists in the above-captioned consolidated investigations. No Commission hearing or briefing is scheduled.

**Authority:** The authority for the Commission's disposition of this matter is contained in section 337 of the Tariff Act of 1930 (19 U.S.C. 1337) and in §§ 210.53.56 of the Commission's Rules of Practice and Procedure (47 FR 25134, June 10, 1982 and 48 FR 9242, March 4, 1983; codified at 19 CFR 210.53-.56).

**SUPPLEMENTARY INFORMATION:** On June 18, 1984, the presiding officer filed an ID that there is no reason to believe a violation of section 337 exists in the importation and sale of certain fluidized supporting apparatus. A petition for review was timely received in Inv. No. 337-TA-182. No comments were received from government agencies.

After examining the record in these investigations, including the ID and the petition for review, the Commission determined to review the ID as it relates to both Inv. No. 337-TA-182 and Inv. No. 337-TA-188.

Notice of these investigations was published in the Federal Register of February 15, 1984 (49 FR 5840) and March 28, 1984 (49 FR 11894).

Copies of the ID and all other nonconfidential documents filed in

connection with these investigations are available for inspection during official business hours (8:45 a.m. to 5:15 p.m.) in the Office of the Secretary, U.S. International Trade Commission, 701 E Street NW., Washington, D.C. 20436, telephone 202-523-0161.

**FOR FURTHER INFORMATION CONTACT:** Wayne W. Herrington, Esq., Office of the General Counsel, U.S. International Trade Commission, telephone 202-523-0480.

By order of the Commission.  
Issued: July 18, 1984.

Kenneth R. Mason,

Secretary.

[FR Doc. 84-18916 Filed 7-24-84; 8:46 am]

BILLING CODE 7020-02-M

[Investigation No. 337-TA-171]

**Certain Glass Tempering Systems; Change of the Commission Investigative Attorney**

Notice is hereby given that, as of this date, Patricia Ray, Esq., of the Unfair Import Investigations Division will be the Commission investigative attorney in the above-cited investigation instead of Lynn I. Levine, Esq.

The Secretary is requested to publish this Notice in the Federal Register.

Dated: July 16, 1984.

David I. Wilson,

Chief, Unfair Import Investigations Division.

[FR Doc. 84-18920 Filed 7-24-84; 8:46 am]

BILLING CODE 7020-02-M

[332-173]

**Conditions of Competition Affecting the Northeastern U.S. Groundfish and Scallop Industries in Selected Markets; Date and Site of Public Hearing**

Notice is hereby given that the public hearing in this matter will be held beginning on Wednesday, September 5, 1984, in Boston, Mass., at the John F. Kennedy Federal Building, Government Center, Room 2003-A, at 10:00 a.m., and on Friday, September 7, 1984, in Portland, Maine, at the Holiday Inn, 88 Spring Street, at 10:00 a.m.

Notice of the investigation and hearing was published in the Federal Register of December 21, 1983 (48 FR 56451).

By order of the Commission.

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Issued: July 18, 1984.

Kenneth R. Mason,  
Secretary.

[FR Doc. 84-19825 Filed 7-24-84; 8:48 am]  
BILLING CODE 7000-02-02

[Investigations Nos. 303-TA-15 (Final) and  
701-TA-213 (Final)]

### Potassium Chloride From Israel and Spain

**AGENCY:** United States International Trade Commission.

**ACTION:** Institution of final countervailing duty investigations and scheduling of a hearing to be held in connection with the investigations.

**EFFECTIVE DATE:** June 29, 1984.

#### SUMMARY:

#### Potassium Chloride From Israel

As a result of a preliminary affirmative determination by the U.S. Department of Commerce that there is reason to believe or suspect that certain benefits which constitute bounties or grants within the meaning of section 303 of the Tariff Act of 1930, as amended (19 U.S.C. 1303), are being provided to manufacturers, producers, or exporters in Israel of potassium chloride, provided for in item 480.50 of the Tariff Schedules of the United States (TSUS), the United States International Trade Commission hereby gives notice of the institution of investigation No. 303-TA-15 (Final) under section 303 of the Tariff Act of 1930 to determine whether an industry in the United States is materially injured or is threatened with material injury, or the establishment of an industry in the United States is materially retarded, by reason of imports of such merchandise. Unless the investigation is extended, the Department of Commerce will make its final countervailing duty determination in this case on or before September 10, 1984, and the Commission will make its final injury determination by October 29, 1984.

#### Potassium Chloride From Spain

As a result of a preliminary affirmative determination by the U.S. Department of Commerce that there is reason to believe or suspect that certain benefits which constitute subsidies within the meaning of section 701 of the Tariff Act of 1930, as amended (19 U.S.C. 1671), are being provided to manufacturers, producers, or exporters in Spain of potassium chloride, provided for in TSUS item 480.50, the United States International Trade Commission hereby gives notice of the institution of investigation No. 701-TA-213 (Final)

under section 705 of the Tariff Act of 1930 (19 U.S.C. 167d) to determine whether an industry in the United States is materially injured or is threatened with material injury, or the establishment of an industry in the United States is materially retarded, by reason of imports of such merchandise. Unless the investigation is extended, the Department of Commerce will make its final countervailing duty determination in this case on or before September 10, 1984, and the Commission will make its final injury determination by October 29, 1984.

**FOR FURTHER INFORMATION CONTACT:** Larry Johnson (202-523-0127), Office of Investigations, U.S. International Trade Commission.

#### SUPPLEMENTARY INFORMATION:

##### Background

On May 14, 1984, The Commission determined, on the basis of the information developed during the course of its preliminary investigations, there was a reasonable indication that an industry in the United States was materially injured by reason of alleged subsidized imports of potassium chloride from Israel and Spain. The preliminary investigation was instituted in response to a petition filed on March 30, 1984, by counsel on behalf of AMAX Chemical, Inc. and Kerr-McGee Chemical Corp.

##### Participation in the Investigation

Persons wishing to participate in this investigation as parties must file an entry of appearance with the Secretary to the Commission, as provided in § 201.11 of the Commission's Rules of Practice and Procedure (19 CFR 201.11), not later than 21 days after the publication of this notice in the *Federal Register*. Any entry of appearance filed after this date will be referred to the Chairwoman, who shall determine whether to accept the late entry for good cause shown by the person desiring to file the entry.

Upon the expiration of the period for filing entries of appearance, the Secretary shall prepare a service list containing the names and addresses of all persons, or their representatives, who are parties to the investigation, pursuant to § 201.11(d) of the Commission's rules (19 CFR 201.11(d)). Each document filed by a party to this investigation must be served on all other parties to the investigation (as identified by the service list), and a certificate of service must accompany the document. The Secretary will not accept a document for filing without a certificate of service (19 CFR 201.16(c)).

#### Staff Report

A public version of the staff report containing preliminary findings of fact in this investigation will be placed in the public record on September 4, 1984, pursuant to § 201.21 of the Commission's rules (19 CFR 207.21).

#### Hearing

The Commission will hold a hearing in connection with this investigation beginning at 10:00 a.m., on September 18, 1984, at the U.S. International Trade Commission Building, 701 E Street, NW., Washington, D.C. 20436. Requests to appear at the hearing should be filed in writing with the Secretary to the Commission not later than the close of business (5:15 p.m.) on August 30, 1984. All persons desiring to appear at the hearing and make oral presentations should file prehearing briefs and attend a prehearing conference to be held at 10:00 a.m., on September 10, 1984, in room 117 of the U.S. International Trade Commission Building. The deadline for filing prehearing briefs is September 14, 1984.

Testimony at the public hearing is governed by § 207.23 of the Commission's rules (19 CFR 207.23). This rule requires that testimony be limited to a nonconfidential summary and analysis of material contained in prehearing briefs and to information not available at the time prehearing brief was submitted. All legal arguments, economic analyses, and factual materials relevant to the public hearing should be included in prehearing briefs in accordance with § 207.22 (19 CFR 207.22). Posthearing briefs must conform with the provisions of § 207.24 (19 CFR 207.24) and must be submitted not later than the close of business on September 26, 1984.

#### Written Submissions

As mentioned, parties to this investigation may file prehearing and posthearing briefs by the dates shown above. In addition, any person who has not entered an appearance as a party to the investigation may submit a written statement of information pertinent to the subject of the investigation on or before September 26, 1984. A signed original and fourteen (14) true copies of each submission must be filed with the Secretary to the Commission in accordance with section 201.8 of the Commission's rules (19 CFR 201.8). All written submissions except for confidential business data will be available for public inspection during regular business hours (8:45 a.m. to 5:15 p.m.) in the Office of the Secretary to the Commission.





Explanation of the rates of duty applicable to groundfish and scallops

The rates of duty in column 1 are most-favored-nation (MFN) rates, and are applicable to imported products from all countries except those Communist countries and areas enumerated in general headnote 3(f) of the TSUSA. <sup>1/</sup> However, such rates do not apply to products of developing countries which are granted preferential tariff treatment under the Generalized System of Preferences (GSP) or under the "LDDC" column.

The rates of duty in the "LDDC" column are preferential rates (reflecting the full U.S. MTN concession rate for a particular item without staging of duty reductions) and are applicable to products of the least developed developing countries designated in general headnote 3(d) of the TSUSA which are not granted duty-free treatment under the GSP. If no rate of duty is provided in the "LDDC" column for a particular item, the column 1 rate applies.

The rates of duty in column 2 apply to imported products from those Communist countries and areas enumerated in general headnote 3(f) of the TSUSA.

The GSP is a program of nonreciprocal tariff preferences granted by the United States to developing countries to aid their economic development by encouraging greater diversification and expansion of their production and exports. The GSP, implemented by Executive Order No. 11888, of November 24, 1975, and extended by the Trade and Tariff Act of 1984, applies to merchandise imported on or after January 1, 1976, and is scheduled to remain in effect until July 4, 1993. It provides for duty-free treatment of eligible articles imported directly from designated beneficiary developing countries. Eligible articles are identified in the column marked "GSP" with an "A" or "A\*." The designation "A" means that all beneficiary developing countries are eligible for the GSP, and "A\*" indicates that certain developing countries, specified in general headnote 3(c) of the TSUSA, are not eligible.

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<sup>1/</sup> The only Communist countries currently eligible for MFN treatment are the People's Republic of China, Hungary, Romania, and Yugoslavia.

TARIFF SCHEDULES OF THE UNITED STATES ANNOTATED (1984)

SCHEDULE 1. - ANIMAL AND VEGETABLE PRODUCTS  
Part 3. - Fish and Shellfish

G S P	Item	Stat- Suf- fix	Articles	Units of Quantity	Rates of Duty	
					1	2
			<b>PART 3. - FISH AND SHELLFISH</b>  <u>Part 3 headnotes:</u>  1. The term "fish", as used in this part, does not include shellfish, or whales or other mammals. This part covers only fish and shellfish, live or dead, fit for human consumption.  2. In subparts A and B of this part, the term " <u>whether or not whole</u> " means if whole, or if processed by removal of heads, fins, viscera, scales, skins, or bones, or by filleting, division into plates, or other cutting or slicing operations, but not minced or ground.  3. In subparts C and D of this part, the term " <u>in oil</u> " means packed in added oil or fat, or in added oil or fat and other substances, whether such oil or fat was introduced at the time of packing or prior thereto.  4. Live fish and shellfish imported to be used for purposes other than human consumption are covered by item 190.45 (see part 15F of schedule 1) and certain other fish and shellfish products are covered by parts 14 and 15 of schedule 1.  <hr/> Subpart A. - Fish, Fresh, Chilled, or Frozen  <u>Subpart A headnote:</u>  1. In item 110.50 of this subpart, "apparent consumption" shall be the sum of (a) the production in the United States of fresh and frozen fillets, steaks, and sticks of the named fish as defined on October 30, 1947, and as reported, by the United States Fish and Wildlife Service, (b) the quantity of such fillets, steaks, and sticks entered into the United States free of duty under the provisions for "products of American fisheries" in part 15 of schedule 1, and (c) the quantity of the named fish entered into the United States and provided for in items 110.50 or 110.55.			

TARIFF SCHEDULES OF THE UNITED STATES ANNOTATED (1984)

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SCHEDULE 1. - ANIMAL AND VEGETABLE PRODUCTS  
Part 3. - Fish and Shellfish

1 - 3 - A  
110.10 - 110.33

G S P	.com	Stat. Suf- fix	Articles	Units of Quantity	Rates of Duty		
					1	LDDC	2
	110.10		Fish, fresh, chilled, or frozen, whether or not whole, but not otherwise prepared or preserved:				
			Sea herring, smelts, and tuna.....		Free		Free
			Smelts:				
		07	Fresh or chilled.....	Lb.			
		09	Frozen.....	Lb.			
			Tuna:				
		12	Albacore.....	Lb.			
			Yellowfin:				
		20	Whole fish.....	Lb.			
			Eviscerated fish:				
		25	Head-on.....	Lb.			
		30	Head-off.....	Lb.			
		37	Other.....	Lb.			
		45	Skipjack.....	Lb.			
		50	Other.....	Lb.			
			Sea herring:				
		60	Fresh or chilled.....	Lb.			
		70	Frozen.....	Lb.			
			Other:				
			Whole; or processed by removal of heads, viscera, fins, or any combination thereof, but not otherwise processed:				
	110.15		Cod, cusk, eels, haddock, hake, pollock, shad, sturgeon, and fresh-water fish.....		Free		1c per lb.
			Fresh-water fish:				
			Whitefish:				
		05	Fresh or chilled.....	Lb.			
		15	Frozen.....	Lb.			
			Pike, pickerel, and pike perch (including yellow pike):				
		37	Fresh or chilled.....	Lb.			
		39	Frozen.....	Lb.			
		40	Lake trout.....	Lb.			
		50	Other trout.....	Lb.			
		75	Other.....	Lb.			
			Cod:				
		85	Fresh or chilled.....	Lb.			
		89	Frozen.....	Lb.			
			Cusk, haddock, hake, and pollock:				
		93	Fresh or chilled.....	Lb.			
		97	Frozen.....	Lb.			
		99	Eels, shad, and sturgeon.....	Lb.			
	110.20		Halibut and salmon.....		Free		2c per lb.
			Halibut:				
		25	Fresh or chilled.....	Lb.			
		30	Frozen.....	Lb.			
			Salmon:				
		45	Fresh or chilled.....	Lb.			
		50	Frozen.....	Lb.			
			Mackerel:				
	110.25	00	Fresh or chilled.....	Lb.....	Free		2c per lb.
A	110.28	00	Frozen.....	Lb.....	0.13c per lb.	Free	2c per lb.
			Swordfish:				
	110.30	00	Fresh or chilled.....	Lb.....	Free		2c per lb.
	110.33	00	Frozen.....	Lb.....	Free		3c per lb.

Note: For explanation of the symbol "A" or "Ae" in the column entitled "GSP", see general headnote 3(c).

TARIFF SCHEDULES OF THE UNITED STATES ANNOTATED (1984)

SCHEDULE 1: - ANIMAL AND VEGETABLE PRODUCTS  
Part 3. - Fish and Shellfish

G S P	Item	Stat. Suf- fix	Articles	Units of Quantity	Rates of Duty		
					1	LDDC	
			Fish, fresh, chilled, or frozen, etc. (con.): Other (con.):				
A	110.35	52	Whole; or processed by removal, etc. (con.): Other.....	.....	0.5c per lb.		1c per lb.
		60	Atlantic ocean perch.....	Lb.			
		65	Flounders and other flatfish, except halibut: Fresh or chilled.....	Lb.			
		70	Frozen.....	Lb.			
		75	Other: Fresh or chilled.....	Lb.			
			Frozen.....	Lb.			
	110.36		If products of Cuba (except Atlantic ocean perch (rosefish) and totoaba or white sea bass).....	.....	0.4c per lb. (s)		
			Scaled (whether or not heads, viscera, fins, or any combination thereof have been re- moved), but not otherwise processed: In bulk or in immediate containers weighing with their contents over 15 pounds each.....	Lb.....	Free		1.25c per lb.
A	110.45	00	Other.....	Lb.....	6% ad val.		25% ad val.
	110.47		Skinned and boned, whether or not divided into pieces, and frozen into blocks each weighing over 10 pounds, imported to be minced, ground, or cut into pieces of uniform weights and dimensions.....	.....	Free		1.25c per lb.
		10	Cod.....	Lb.			
		24	Flatfish: Turbot.....	Lb.			
		26	Other.....	Lb.			
		30	Haddock.....	Lb.			
		40	Pollock.....	Lb.			
		55	Whiting.....	Lb.			
		60	Atlantic ocean perch (rosefish).....	Lb.			
		65	Other.....	Lb.			
			Otherwise processed (whether or not heads, viscera, fins, scales, or any combination thereof have been removed): Cod, cusk, haddock, hake, pollock, and Atlantic ocean perch (rosefish): For an aggregate quantity entered in any calendar year of 15,000,000 pounds, or not more than a quantity equal to 15% of the average aggregate apparent annual consumption of such fish during the 3 calendar years immediately preceding the year in which the imported fish are entered, whichever quantity is greater, of which total quantity not over 1/4 shall be entered during the first 3 months, not over 1/2 during the first 6 months, and not over 3/4 during the first 9 months of that year.....	Lb.....	1.875c per lb.		2.5c per lb.
	110.50	00					

(s) = Suspended. See general headnote 3(b).

Note: For explanation of the symbol "A" or "A\*" in  
the column entitled "GSP", see general headnote 3(c).

TARIFF SCHEDULES OF THE UNITED STATES ANNOTATED (1984)

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SCHEDULE 1. - ANIMAL AND VEGETABLE PRODUCTS  
Part 3. - Fish and Shellfish

1 - 3 - A, B  
110.55 - 111.18

G S P	Item	Stat. Suf- fix	Articles	Units of Quantity	Rates of Duty		
					1	LDDC	2
	110.55	20	Fish, fresh, chilled, or frozen, etc. (con.): Other (con.): Otherwise processed, etc. (con.): Cod, cusk, haddock, etc. (con.): Other.....	.....	2.11c per lb.	1.875c per lb.	2.5c per lb.
			Atlantic ocean perch (rose- fish).....	Lb.			
			Cod:				
		45	Fresh or chilled.....	Lb.			
		50	Frozen.....	Lb.			
			Cusk, haddock, hake, and pollock:				
		65	Fresh or chilled.....	Lb.			
		70	Frozen.....	Lb.			
	110.57		Wolf fish (sea catfish).....	.....	Free		2.5c per lb.
		10	Fresh or chilled.....	Lb.			
		20	Frozen.....	Lb.			
	110.65		Yellow perch.....	.....	0.2% ad val.	Free	1% ad val.
		10	Fresh or chilled.....	Lb.			
		20	Frozen.....	Lb.			
	110.70		Other.....	.....	Free		2.5c per lb.
			Fresh-water fish:				
			Pike, pickerel, and pike perch (including yellow pike):				
		05	Fresh or chilled.....	Lb.			
		15	Frozen.....	Lb.			
		24	Catfish.....	Lb.			
		28	Other.....	Lb.			
			Flatfish, except halibut:				
		31	Fresh or chilled.....	Lb.			
			Frozen:				
		38	Turbot.....	Lb.			
		39	Other.....	Lb.			
		40	Halibut.....	Lb.			
		70	Salmon.....	Lb.			
		80	Other.....	Lb.			
<p><b>Subpart B. - Fish, Dried, Salted, Pickled, Smoked, or Kippered</b></p>							
<p><u>Subpart B headnote:</u></p> <p>1. In this subpart, the term "dried" means dried (but not salted, pickled, smoked, or kippered), the term "salted or pickled" means salted or pickled (whether or not dried, but not smoked or kippered), and the term "smoked or kippered" means smoked or kippered (whether or not dried, salted, or pickled).</p>							
<p>—————</p>							
			Fish, dried, whether or not whole, but not otherwise prepared or preserved, and not in airtight containers:				
A	111.10	00	Cod, cusk, haddock, hake, and pollock.....	Lb.....	0.1c per lb.		2.5c per lb.
A	111.15	00	Shark fins.....	Lb.....	0.2c per lb.		1.25c per lb.
A	111.18	00	Other.....	Lb.....	0.1c per lb.		1.25c per lb.
<p>Note: For explanation of the symbol "A" or "A*" in the column entitled "GSP", see general headnote 3(c).</p>							

TARIFF SCHEDULES OF THE UNITED STATES ANNOTATED (1984)

SCHEDULE 1. - ANIMAL AND VEGETABLE PRODUCTS  
Part 3. - Fish and Shellfish

G S P	Item	Stat. Suf- fix	Articles	Units of Quantity	Rates of Duty		
					1	LDDC	2
			Shellfish, fresh, chilled, frozen, etc. (con.):				
			Oysters:				
	114.34	00	In airtight containers:				
			Smoked.....	Lb.....	0.8% ad val.	Free	7.5% ad val.
	114.36	00	Other.....	Lb.....	4.7% ad val.		12.5% ad val.
	114.60		Other.....		Free		Free
		20	Seed oysters.....	Bu.			
		40	Other.....	Lb.			
	114.65		Other shellfish.....		Free		Free
		10	Abalone.....	Lb.			
			Lobsters:				
		15	In airtight containers.....	Lb.			
			Other:				
		20	Live lobsters.....	Lb.			
		25	Rock lobster tails.....	Lb.			
		30	Other.....	Lb.			
		37	Scallops.....	Lb.			
			Shrimp:				
		45	Shell-on.....	Lb.			
			Peeled:				
		50	In airtight containers.....	Lb.			
			Other:				
			Not breaded:				
		57	Raw.....	Lb.			
		62	Other.....	Lb.			
		72	Breaded.....	Lb.			
		90	Other.....	Lb.			
			Shellfish juices in airtight containers:				
	114.50	00	Clam juice.....	Lb.....	8.5% ad val.		35% ad val.
A	114.55	00	Oyster juice.....	Lb.....	1.7% ad val.	Free	13% ad val.

Note: For explanation of the symbol "A" or "A\*" in the column entitled "GSP", see general headnote 3(c).



